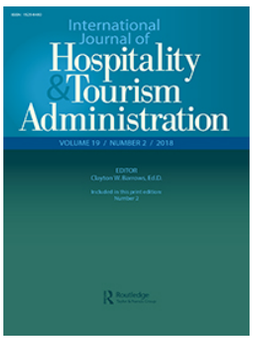

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Effect of Management Practices on Actual ICT Application in Kenyan Hotels: A PLS-SEM Approach

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ABSTRACT

Advances in information communication technology (ICT) has seen many hotels invest huge sums of money in ICTs to enhance their performance. However, this has never been the case for most hotels in economically developing countries due to poor ICT implementation. This study sought to establish how ICT-related management practices influence actual ICT application by hotels in Kenya. A total of 194 hotel managers drawn from 36 hotels were surveyed. The data collected was analyzed quantitatively. The outcomes show that though operational management and human resource management practices significantly predict actual ICT application, HRM practices have the biggest effect in explaining the variance in actual ICT application. The study finding offer insights to best management practices and how they influence actual ICT use in hotels.

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Hotels; ICT application; Kenya; management practices; PLS-SEM

Introduction

Information communication technology (ICT) usage within the tourism industry dates back to the early 1950s with the adoption of computer reservation system in the airline industry (International Federation for IT and Travel & Tourism, 2013; Salim, Shayo, Abaho, & Sheikh, 2013). Since then, the tourism industry generally has seen tremendous expansion and growth to what it is today. This exponential growth is attributed to a number of factors such as technological advancements and changing management practices among others. Technologies are therefore seen as strategic potent tool for organization development (Ansah, Blankson, & Kontoh, 2012; Corigliano & Baggio, 2006; Hospitality Technology, 2002; Petre, Stegerean, & Gavrea, 2012), including those in the hospitality industry. As such, a number of hotels today, particularly in the economically developed world, proactively employ ICTs given the benefits attributed to ICT use (Magnini, Honeycutt, & Hodge, 2003). In fact, the contribution of ICT in the tourism

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industry is widely recognized among several tourism and hospitality literature. A number of sources (e.g., Duffy, 2010; Eze, 2013; International Labour Organization, 2010; Mihalič & Buhalis, 2013; Mutua & Wasike, 2009; Petre et al., 2012; Sahadev & Islam, 2005; Sirirak, Islam, & Khang, 2011; Zelenka, 2009) have shown that adoption and application of ICTs by business firms leads to improved efficiencies in operations and customer service levels and thus results to comparative advantage.

Within the hospitality industry, technology is considered as one of the contingency factors that influence strategic management and business operations (Adeosun, Adeosun, & Adetunde, 2009; Buhalis, 2003; McLeod, 2010). Whereas it's true that technology today has influenced how different organizations, including hotels, are managed (Adeosun et al., 2009; Buhalis, 2003; McLeod, 2010; Petre et al., 2012; Sahadev & Islam, 2005), the success of any ICT adoption and application depends on a number of management practices in place (Buhalis & Costa, 2006; Obonyo, Okeyo, & Kambona, 2016) that shape users' attitudes. There is, indeed, indication that different firms across diverse industries and countries exhibit varied management practices (Bloom & Van Reenen, 2010), which in turn influences organizations' productivity at different spatial operations (Vrdoljak & Bukvić, 2004). In reality, varied hotels in Kenya and across the world have achieved varying performance levels based on distinct management practices including people-management skills (Siebers et al., 2008). Among these are those organizations that have considered ICTs as part of their management strategies to aid in the actualization of their organizational goals (Eze, 2013). Indeed, many hotel operational activities such reservation, product distribution, marketing, sales management, purchasing, and communication cannot be carried out without the support of ICTs (Petre et al., 2012). While the role played by ICTs in enhancing management of hotel operations has been lauded by several authors (Biagi & Parisi, 2012; Buhalis, 2003; Buhalis & Costa, 2006; Buhalis & Law, 2008; Eze, 2013; McLeod, 2010; Mihalič & Buhalis, 2013; Obonyo et al., 2016; Petre et al., 2012; Poon, 1993; Praničević, Alfirević, & Štemberger, 2011; Sahadev & Islam, 2005), it's still not distinct as to how management practices influence ICT application, yet the success of the adopted ICTs would depend on the management practices in place (Buhalis & Costa, 2006), which in turn would influence their effective implementation. There is therefore a need for understanding key ICT-related management practices and how they influence actual ICT application, especially within the realm of hospitality businesses in Kenya.

The preceding arguments notwithstanding, a number of theories and models have been developed to help understand the general concepts of ICT adoption and application. For instance, social psychology and its applied theories and models have been mainly used in understanding peoples' intention to engage in a certain behavior (i.e., adopt and use ICT). In this respect,

the theory of reasoned action (TRA) provide the basic theoretical backgrounds for other adoption theories including theory of planned behavior (TPB), the technology acceptance model (TAM; Davis, 1985); extended technology acceptance model (TAM2; Venkatesh & Davis, 2000); united theory of acceptance and use of technology (UTAUT; Venkatesh, Morris, Davis, & Davis, 2003); integration of technology readiness and technology acceptance model (TRAM; Lin, Shih, & Sher, 2007); and the combined model of task-technology fit and technology acceptance model (Chang, 2008). Even though these models were found to be valid theoretical frameworks in studying ICT adoption and use, they have been criticized for their several limitations, including the original model's intended generality and parsimony (Dishaw & Strong, 1999), not considering nonorganizational settings (Venkatesh & Davis, 2000), and focusing more on individual rather than organizational perspectives (Obonyo et al., 2016). While these models have also been tested and applied in various sectors such as agriculture, education, small and medium enterprises, and even in some hotels, their application in the hotel sector is limited. This is because different firms have different needs and require different approaches in their management. These models are therefore too equivocal to be applied, particularly in the hotel industry in Kenya, given the environment in which they were developed. There is thus a need to further understand ICT-related management practices and how they influence actual ICT application in hotels. This study, therefore, sought to answer the research question: "What ICT-related management practices are exhibited by hotel managers and how do they influence actual ICT applications among three to five star hotels in Kenya?"

Literature Review

ICT Models and Theories

A number of ICT- and technology-related models have been proposed to help understand the concept of ICT adoption. These include the TAM, innovation-decision process framework (IDPF), UTAUT, and model of the IT implementation process.

Technology Acceptance Model

Davis (1985) developed the TAM, which aimed at predicting and explaining ICT usage behavior of individuals. While the TAM stands out to be one of the most popular theoretical models used to explain technology adoption and use by individuals (Chen & Chen, 2009; Chen, Chen, & Chen, 2009; Chuttur, 2009; Korpelainen, 2011; Lin et al., 2007; Venkatesh & Davis, 2000; Venkatesh et al., 2003), it generally emphasizes individual psychological constructs, where the ICT adoption and application process is seen as an

individual's decision rather than an organizational decision. In this regard, it's worth noting that employee attitude in applying a particular ICT to perform their work is not a result of perceived technological benefits and ease of use alone as espoused in the TAM model, but rather the result of the socio-cultural context of the organization and that of the individual. Hence, TAM in itself would not fully explain the interaction relationship that exists between ICTs and the organization at large given its central focus on individual perceptions.

Innovation-Decision Process Framework

IDPF (Rogers, 1995) focuses on the factors affecting the diffusion of innovations such as the need to increase operational efficiency, the need to improve market reach and profitability, and the need to manage risks (Baggio, 2004; Hashim, 2007; Sahadev & Islam, 2005; Sirirak et al., 2011). The focus is on aspects that are of benefit—what Hashim (2007) called "advantage"—to the adopter. This model principally focuses on the output component of technology use, hence, is inadequate to explain the ICT-related management practices and actual ICT application in the context of hotels. The model overlooks the process components of organization management such as the management practices and structures of a given organization, which is thought to influence technology adoption and use.

United Theory of Acceptance and Use of Technology

The UTAUT (Venkatesh et al., 2003) combines the most popularly used eight ICT adoption models: the TRA, the TAM, the motivational model, the TPB, a model combining the TAM and the TPB (C-TAM—TPB), the model of personal computer utilization, the innovation diffusion theory, and the social cognitive theory. The UTAUT model consists of performance expectancy, effort expectancy, social influence, and facilitating conditions that predict behavioral and use intention under different moderating conditions. However, the focus of this model is more towards individual perspectives rather than organizational viewpoints and would not suitably address an organization's ICT needs. The model also focuses on use intention rather than actual use.

Social Network Theory

The social network theory (SNT) posits that social context can influence the motives and behaviors of individuals (known as actors) and that organizations (e.g., hotels) are socially constructed and are influenced by the characteristics and motives of all actors (BarNir & Smith, 2002; Pitt, Van Der Merwe, Berthon, Salehi-Sangari, & Caruana, 2006; Shaw, 2006) including managers. This theory is considered to help understand the relationship that exists between managers (through ICT-related management practices) and

individual user of ICT. In the SNT, individuals are embedded in a social context and considers social structure, the existence and type of relations, and the strength of relations known as social ties (BarNir & Smith, 2002). Managers as actors, on the other hand, play a significant role in defining the kind of relationship they establish with other ICT users through an array of ICT-related management practices. For this reason, in SNT, relationships among actors are more important than the characteristics of individual actors. This theory was considered to provide an understanding of organizational context through management practices and how these influence ICT use.

Management Practices and ICT Use in Organizations

Management is a generic term that applies to almost every organization. It means getting things done effectively through people (Luke, 2011) implying that leadership and people skills are important elements of management. According to some studies (Siebers et al., 2008; Wall & Wood, 2005) people skills would entail elements of human resource management, which are firm specific. Given that it's every manager's goal to be productive (Olum, 2004), management must devise a number of strategies that include technology use (Buhalis & Law, 2008; Eze, 2013; Mihalič & Buhalis, 2013; Poon, 1993) and implement a set of management practices that works for the organization. Extant literature (Bresnahan, Brynjolfsson, & Hitt, 2002; Caroli & Van Reenen, 2001; Dorgan & Dowdy, 2004; Siebers et al., 2008) highlights the potential synergistic effects achieved by combining ICT with management practices. Dorgan and Dowdy (2004), in particular, established that the productivity of a firm can increase by up to 20% if information technologies (IT) are used, but not if firms simply invest in IT without accompanying this investment by first-rate management practices. This implies that to achieve appropriate ICT implementation, appropriate ICT-related management practices should be considered by ICT adopters. A similar view is held by Buhalis and Costa (2006), who believed that successful ICT adoption and application would depend on the kinds of management practice in place. As such, Obonyo et al. (2016), in their case study of 36 hotels in Kenya, categorized ICT-related management practices into two: operational management practice and human resource management practice. Their findings suggested that these sets of management practices impact actual ICT application in three- to five-star hotels in Kenya.

In spite of this, a number of studies (e.g., Biagi & Parisi, 2012; Buhalis & Costa, 2006; Buhalis & Law, 2008; Connolly & Olsen, 2000; Eze, 2013; Mihalič & Buhalis, 2013; Poon, 1993; Praničević et al., 2011) have only considered technology as a main competitive and strategic tool that leads to a redefinition of strategies, processes, and practices with clear results on

the operational capabilities of firms (Biagi & Parisi, 2012; Buhalis & Law, 2008; Eze, 2013). In this case, ICTs are only considered as the tool for altering practices. Buhalis and Law (2008), for instance, found that ICTs significantly influence management strategies and practices employed by an organization. A similar view is shared by Eze (2013) who believe that organizations should consider ICTs as part of management strategies and ethics in order to be successful in their operations. Moreover, other studies (Adeosun et al., 2009; McLeod, 2010) have considered technology as one of the important contingency factors that influence strategic management in hospitality and tourism organizations. The implication of these studies is that technology in itself would influence strategic organization activities and practices of a hotel including different sets of management practice exhibited by hotel managers.

Other researchers (Drohan, Foley, & Lynch, 2009; Gouthier & Schmid, 2003), however, contend that having resources (such as technologies) in an organization by itself is not a key to success, and that the capabilities of management utilizing these resources through sound management practices is rather more important. As a result, managers play a vital role in determining how resources (e.g., ICTs) in an organization are utilized (Lee & Lee, 2010; Obonyo et al., 2016; Wang & Qualls, 2007). In support of this, Buhalis and O'Connor (2005) argued that successful ICT application calls for innovative management to constantly review developments and adopt suitable technological solutions in order to maximize organizational competitiveness. In concurrence, Crystal, Leung, and Law (2011), proposed that hospitality managers in the current business environment should understand the potential advantages of ICT and devote their time and effort to taking advantage these resources.

Despite the aforementioned argument, the link between management practices and actual ICT use is not clear despite there being arguments that if the two are combined it would translate to positive organization performance. In particular, the role of management practices in influencing actual ICT application within the hotel industry is minimal with only a case study done earlier to establish the nature of this link (see Obonyo et al., 2016). To fill this gap, this study set to assess the influence of key ICT-related management practices on ICT application in three- to five-star hotels in Kenya.

Research Methods

Research Design, Population, and Sampling

This research employed a cross-sectional research design in which data was collected and analyzed quantitatively over a period of four months. Data was collected from 197 top- and middle-level managers drawn from an estimated population of 288 hotel managers from 36 hotels in Nairobi and Coast

regions in Kenya. The managers were considered because they are perceived to have a broad overview of how their organization is changing in response to ICT. To arrive at a well representative sample for the study, multistage sampling technique consisting of stratified, proportionate, purposeful, and convenience sampling was used. The researchers first stratified the hotels according to their geographic strata (i.e., Nairobi and Coastal hotels) and then according to hotel rating (i.e., three-, four-, and five-star) in order to split the heterogeneous population into fairly homogeneous groups so that samples can be drawn from the group with precision. Using a minimum sample size of 195 managers (calculated using the Creative Research System formula for definite population), the respondents were drawn proportionately from the strata using Formula 1 as shown:

$$Actual\ Sample = \frac{Population\ Strata}{Estimated\ Population} \times Min.\ Sample\ Size\ for\ the\ Study \quad (1)$$

Where:

Population strata is 64 for three-star hotels in Nairobi, 104 for three-star hotels at the Coast, 48 for four-star hotels at the Coast, 56 for five-star hotels in Nairobi, and 16 for five-star hotels at the Coast. The estimated population is 288, and the minimum sample size is 195. This resulted in a slightly higher sample size, 197, as shown in Table 1. Proportionate sampling was considered because it provides the researcher with a way of achieving even greater representativeness in the sample of the population (Van Dalen, 1979). Since this research targeted both top- and middle-level managers, top-level managers were purposefully selected while the middle-level managers were selected conveniently due to their busy nature in the hotel.

Data Collection

Self-administered questionnaires were distributed to the targeted hotel managers to fill. The respondents were required to provide demographic information about themselves and the hotel. They were then required to indicate on a 7-point Likert scale their level of appropriateness with 17 ICT-related management practices they demonstrate at the hotel. The scale ranged from 1 (*absolutely inappropriate*) to 7 (*absolutely appropriate*) (Vagias, 2006). The respondents were then required to indicate on a 7-point Likert scale

Table 1. Management Proportion Considered in the Study.

Hotel Strata	Three Star	Four Star	Five Star	Total
Nairobi	44	0	38	82
Coast	71	33	11	115
Total	115	33	49	197

frequency of ICT use at the hotel in relation to 24 measurement items used to operationalize ICT application construct. The continuum ranged from 1 (*never*) to 7 (*every time*) (Vagias, 2006). The questionnaire was then pretested with 10 hotel managers and pretest issues reviewed. The final pretest results were entered into SPSS and Cronbach's alpha computed to test reliability of each item. All items that registered reliability values below the recommended value of 0.7 were dropped from the questionnaire. As a result, 12 and 14 items were retained for evaluating management practices and ICT application, respectively, in the main survey.

Data Analysis

The data were analyzed using both descriptive and multivariate analysis methods. First, frequencies and means were generated in SPSS to describe the distribution of data as well as the demographic composition of the study sample. Exploratory factor analysis was then conducted in SPSS with principal axis factoring and varimax rotation. The aim was to help in data reduction and identify latent variables that explain the relations among the set of study indicators to be modeled in partial least square structural equation modeling (PLS-SEM). Kaiser's criterion (eigenvalue > 1) was used in determining the number of factors to retain for interpretation. Only factor loadings equal to or greater than .50 were retained for interpretation and further analysis. Finally, PLS-SEM using SmartPLS 3.2.3 was used to examine the relationships among latent variables in the model. PLS-SEM was conducted with the path-weighting scheme, and the measurement and structural models were evaluated using nonparametric criteria in two main steps: measurement model evaluation and structural model evaluation. PLS techniques such as bootstrapping and blindfolding were used to evaluate the model predictive capability (Hair, Hult, Ringle, & Sarstedt, 2014). PLS-SEM was considered over the covariance-based structural equation modeling for a number of reasons, including (a) the study focus is prediction and theory development; (b) there is little a priori knowledge of structural model relationships and the measurement of the constructs under investigation in this study, and (c) some of the constructs (ICT application) are also modeled reflectively as higher order constructs (HOCs), making PLS-SEM suitable for such kind of modeling (Hair et al., 2014).

Research Findings

A total of 194 usable questionnaires were received back for analysis. Frequencies were computed for each item and checks made for missing data and to identify outlier responses. While no missing data values were identified, outliers were detected in two items used to measure management

Table 2. Mean, Standard Deviation, Skewness, and Kutorsis.

Variable	*M*	*SD*	Min.	Max.	Skewness	Kurtosis
MP2	6.01	.938	3	7	−.743	−.107
MP3	6.01	.947	3	7	−.714	−.204
MP4	5.92	.940	3	7	−.627	−.258
MP6	5.98	.949	2	7	−.877	.782
MP9	5.98	.899	3	7	−.695	.029
MP12	5.95	.940	2	7	−.814	.735
MP1	5.93	.896	3	7	−.643	.381
MP5	5.91	.900	3	7	−.505	−.279
MP7	5.99	.873	3	7	−.699	.170
MP8	5.99	.852	3	7	−.641	.172
MP10	5.97	.863	3	7	−.624	.319
MP11	6.02	.858	3	7	−.687	.200
AP2	5.87	.887	3	7	−.510	−.171
AP5	5.88	.896	3	7	−.495	−.247
AP6	5.88	.882	3	7	−.497	−.179
AP9	5.89	.872	4	7	−.309	−.701
AP10	5.92	.884	4	7	−.384	−.652
AP13	5.89	.890	4	7	−.455	−.301
AP14	5.85	.868	3	7	−.319	−.368
AP1	5.99	.902	3	7	−.546	−.338
AP3	5.96	.930	3	7	−.554	−.402
AP4	6.02	.902	3	7	−.545	−.384
AP7	6.07	.899	3	7	−.737	−.007
AP8	6.01	.936	3	7	−.585	−.267
AP11	5.94	.900	3	7	−.577	.012
AP12	5.89	.886	3	7	−.408	−.361

Note. MP = management practices; AP = ICT application.

practices (MP10 and MP4) and another two items used to measure ICT application (AP6 and AP13,) by producing boxplots in SPSS 20.0. The outliers were retained because there was no demonstrable proof that they were truly aberrant. On average, the data exhibited a normal distribution with the majority of the skewness and kurtosis falling in the range of +1 and −1 thresholds (see Table 2).

Demographic Characteristics

The demographic profile of the survey respondents, including their gender, age, position, work experience in the hotel sector, are summarized in Table 3. The table indicates that the sample mainly consisted of front office managers at 18.6% followed by the general managers at 17.5% with the majority of the respondents (69.6%) being male. Also, the majority (56.7%) of the respondents had diploma while a greater percentage (84.0%) had worked for over five years in the hotel. The majority of respondents (61.3%) had good knowledge of ICT. The table shows that majority (59.3%) of the respondents were from three-star hotels, followed by 24.2% from five-star hotels. Most of the respondents (75.8%) were also from hotels that have been in operation for more than 10 years. A bigger percentage of the respondents (90.7%) were from hotels that have been using ICTs for more

Table 3. Demographic Characteristics of the Respondents.

Respondents characteristics	Frequency	%
Gender		
Male	135	69.6
Female	59	30.4
Total	194	100.0
Education level		
Diploma	110	56.7
Bachelor's degree	84	43.3
Total	194	100.0
Job position		
General manager	34	17.5
Human resource manager	25	12.9
Purchasing manager	18	9.3
Front office manager	36	18.6
Housekeeping manager	15	7.7
Sales & marketing manager	21	10.8
IT/ICT manager	11	5.7
Others	4	2.1
Total	194	100.0
Working years in the hotel		
Less than 5 years	31	16.0
More than 10 years	63	32.5
Total	194	100.0
ICT knowledge		
Moderate	11	5.7
Good	119	61.3
Excellent	64	33.0
Total	194	100.0
Hotel rating		
3 star	115	59.3
4 star	32	16.5
5 star	47	24.2
Total	194	100.0
Hotel existence		
5–10 years	47	24.2
More than 10 years	147	75.8
Total	194	100.0
Hotel ownership		
Government	51	26.3
Foreign owned	62	32.0
Family owned	81	41.8
Total	194	100.0
Hotel ICT usage in years		
Less than 5 years	18	9.3
5–10 years	102	52.6
More than 10 years	74	38.1
Total	194	100.0
Clientele type		
Business oriented	42	21.6
Leisure oriented	44	22.7
Business & leisure	108	55.7
Total	194	100.0
Staff ICT literacy		
Basic	118	60.8
Advanced	72	37.1
Creative	4	2.1
Total	194	100.0

than five years. Of the respondents, 55.7% were from hotels that targeted both business- and leisure-oriented travelers, with most (60.8%) of the respondents having basic ICT skills.

Exploratory Factor Analysis

Table 4 and Table 5 shows the summary of exploratory factor analysis results for management practices and ICT application constructs respectively. Factor

Table 4. Rotated Factor Matrix for Management Practices Measures.

	Factor		Communalities	
Management practices measures	1	2	Initial	Extraction
MP2	.832		.868	.796
MP3	.869		.873	.822
MP4	.927		.904	.927
MP6	.869		.899	.870
MP9	.857		.862	.843
MP12	.835		.866	.807
MP1		.810	.722	.749
MP5		.791	.777	.703
MP7		.813	.802	.737
MP8		.859	.837	.827
MP10		.847	.842	.801
MP11		.853	.826	.813
Average communalities				
Variance explained	41.699	39.106		
Total variance accounted for	80.776			

Note. MP = management practices; Kaiser-Meyer-Olkin measure of sampling adequacy = 0.902; extraction method: principal axis factoring; rotation: varimax.

Table 5. Rotated Factor Matrix of Actual ICT Applications.

	Factors		Communalities	
ICT applications	1	2	Initial	Extraction
AP2	.866		.851	.841
AP5	.856		.872	.833
AP6	.870		.869	.852
AP9	.917		.963	.909
AP10	.899		.958	.895
AP13	.873		.878	.857
AP14	.838		.807	.784
AP1		.834	.816	.781
AP3		.901	.935	.878
AP4		.878	.840	.840
AP7		.839	.845	.820
AP8		.852	.871	.794
AP11		.852	.867	.825
AP12		.833	.914	.795
Average communalities				
Variance explained	42.556	41.036		
Total variance accounted for		83.592		

Note. AP = ICT application; Kaiser-Meyer-Olkin measure of sampling adequacy = 0.875; extraction method: principal axis factoring; rotation: varimax.

analysis of the 12 management practice measures resulted in a two-factor solution that accounted for 80.776% of the total variance explained. The factors were named and Human Resource Management Practices (41.669%) and Operational Management Practices (39.106%). Six items loaded highly on each of the factors. This implies that the six items that loaded on operational management practices accounted for 41.669% of the total variance explained, while the remaining six items that loaded on human resource management practices accounted for 39.106% of the total variance explained.

When subjected to factor analysis, the 14 ICT application measures also resulted in a two-factor solution that accounted for 83.592% of the total variance explained (see Table 5). The factors were named Internal Use Functions (42.556%) and External Use Functions (41.036%). Seven items loaded highly on each of the factors, implying that the seven items that loaded on Internal Use Functions accounted for 42.556% of the total factor explained, while the other seven items that loaded on External Use Functions accounted for 41.036% of the total variance explained. In all the cases, factor naming was guided the factor loading structures and information from extant literature.

PLS-SEM

The Measurement Models

Assessment of measurement models includes composite reliability to evaluate internal consistency, individual indicator reliability, and average variance extracted (AVE) to evaluate convergent validity as well as the Fornell-Larcker criterion, item cross loadings and heterotrait-monotrait ratio (HTMT) to assess discriminant validity (Hair et al., 2014; Henseler et al., 2014). Measurement model in this study include lower order constructs (LOC) and HOCs with the latter measurement reflectively modeled using repeated indicators approach as described in Rajala and Westerlund (2010) and Wetzels, Odekerken-Schröder, and Van Oppen (2009). The higher order measurement model (actual ICT application) is shown in Figure 1.

Internal Consistency

To assess internal consistency, composite reliability measures were used. Internal consistency results for both LOCs and HOCs are presented in Table 6. The table shows that the measures are robust in terms of their internal consistency reliability, as indexed by the composite reliability (*Pc*). The composite reliabilities (*Pc*) of the different measures used in this research range from 0.962 (operation management practices, OMP) to 0.980 (internal use functions, IUF), an indication of internal consistency and that all

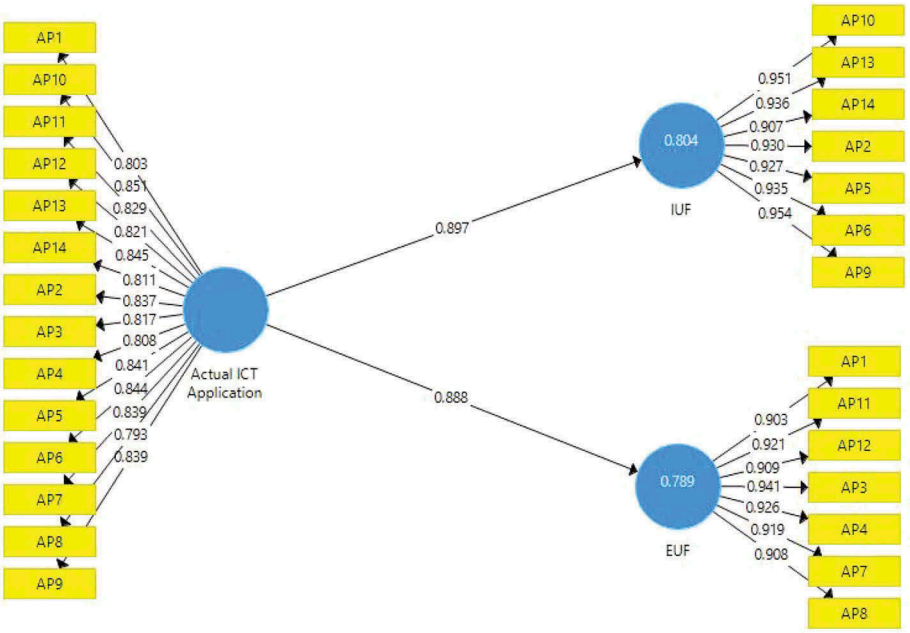

Figure 1. Conceptual representation of hierarchical components model for actual ICT application.
Note. All loadings and weights are significant at .0001 (two-tailed).

constructs are within accepted limits and reliable, since all the *Pc* values are above the recommended 0.70 threshold (Chin, 2010; Hair et al., 2014).

Convergent Validity

To assess convergent validity, indicator's outer loading and AVE were used. Table 6 shows that all the outer loadings were above 0.708 for both LOCs and HOCs with the lowest loading registered by AP8 (0.793) in its HOC (i.e., actual ICT application, AIA). This implies that all the constructs explained more than 50% of their indicator's variance in the LOCs. In addition, consistent with the guidelines of Fornell and Larcker, the AVE for each measure exceeded 0.50. AVEs for this study ranged from 0.684 (AIA) to 0.873 (IUF), implying that, on average, the construct explains more than half of the variance of its indicators (Chin, 2010; Hair et al., 2014).

Discriminant Validity

This study employed three methods to assess discriminant validity namely indicator cross loadings, the Fornell-Larcker criterion and the HTMT approach. Discriminant validity is established when an indicator's loading on a construct is higher than all of its cross loadings with other constructs (Chin, 2010; Hair et al., 2014) except in reflectively modeled LOCs and HOCs where validity concern is not an issue (Hair et al., 2014). The result presented in Table 7 shows that all

Table 6. Reliability and Convergent Validity Assessment.

Latent construct/Measured variable	Item	Loadings LOCs	Loadings HOCs	*Pc*	AVE
Operational management practices				0.962	0.809
Establishing ICT use procedures and maintenance policies at the hotel to facilitate ease of use	MP1	0.891			
Allocating funds to invest in up to date technology to facilitate hotel business operations	MP5	0.872			
Ensuring proper maintenance of available ICT facilities at the hotel to facilitate ease of use	MP7	0.886			
Organizing the workplace so that all the ICT facilities and systems are easily accessible for use	MP8	0.920			
Assessing hotel needs with regard to ICT investments before any ICT investment is done	MP10	0.911			
Developing strategic and short term plan for ICT adoption and use in the hotel	MP11	0.915			
Human resource management practices				0.975	0.868
Consulting staff on any decision on ICT adoption by the hotel so as to incorporate their views	MP2	0.914			
Encouraging and rewarding employees with innovative ideas regarding ICT use at the hotel	MP3	0.922			
Clearly defining activities and jobs that must be performed using ICTs in the hotel	MP4	0.959			
Regular training of staff on new ICT skills to keep update with changing ICT trends in the hotel	MP6	0.942			
Providing incentives and motivation to hotel staff to make use of the available hotel ICTs	MP9	0.932			
Employing staff with ICT skills and expertise so as to be in a position to utilise existing ICTs	MP12	0.920			
Actual ICT application				0.968	0.684
Internal use functions				0.980	0.873
Food and beverage service delivery within the hotel rooms, restaurants and bars	AP2	0.930	0.837		
Communication within the hotel (e.g., with employees and other departments at the hotel)	AP5	0.927	0.841		
Controlling and monitoring hotel business activities and property including security (e.g., CCTVs)	AP6	0.935	0.844		
Inventory management and control	AP9	0.954	0.839		
Finance and accounting management needs of the hotel	AP10	0.951	0.851		
Rooms management and managing housekeeping activities	AP13	0.936	0.845		
Integrating back office and front office hotel procedures	AP14	0.907	0.811		
External use functions				0.974	0.843
Communication outside the hotel with customers, suppliers etc.	AP1	0.903	0.803		
Distributing hotel products and related services (e.g., through GDS, online travel agents, etc.)	AP3	0.941	0.817		
Capacity management (e.g., reservations through CRS, PMS, and GDS)	AP4	0.926	0.808		
Customer relationship management and feedback management	AP7	0.919	0.839		
Procuring materials for hotel operation (e.g., e-procurement, e-commerce)	AP8	0.908	0.793		
Networking and collaboration with other stakeholders	AP11	0.921	0.829		
Facilitating marketing through the Internet, social media, etc.	AP12	0.910	0.821		

Note. MP = management practices; AP = ICT application; *Pc* = composite reliability; AVE = average variance extracted; LOCs = lower order constructs; HOCs = higher order constructs; CRS = Central Reservation System; PMS = Property Management System; GDS = Global Distribution System.

Table 7. Cross Loadings for Assessing Discriminant Validity.

		Latent variable				
Measured variable	Item	AIA	HRMP	EUF	OMP	IUF
Communication outside the hotel with customers, suppliers etc.	AP1	**0.803**	0.563	**0.903**	0.506	0.537
Distributing hotel products and related services (e.g., through GDS, online travel agents, etc.)	AP3	**0.817**	0.644	**0.941**	0.557	0.526
Capacity management (e.g., reservations through CRS, PMS, and GDS)	AP4	**0.808**	0.564	**0.926**	0.530	0.524
Customer relationship management and feedback management	AP7	**0.839**	0.611	**0.919**	0.526	0.585
Procuring materials for hotel operation (e.g., e-procurement, e-commerce)	AP8	**0.793**	0.590	**0.908**	0.505	0.515
Networking and collaboration with other stakeholders	AP11	**0.829**	0.622	**0.921**	0.526	0.566
Facilitating marketing through the Internet, social media, etc.	AP12	**0.821**	0.627	**0.910**	0.573	0.562
Rooms management and managing housekeeping activities	AP13	**0.845**	0.628	0.565	0.555	**0.936**
Integrating back office and front office hotel procedures	AP14	**0.811**	0.618	0.534	0.510	**0.907**
Food and beverage service delivery within the hotel rooms, restaurants and bars	AP2	**0.837**	0.659	0.557	0.535	**0.930**
Finance and accounting management needs of the hotel	AP10	**0.851**	0.644	0.561	0.565	**0.951**
Communication within the hotel (e.g., with employees and other departments at the hotel)	AP5	**0.841**	0.669	0.567	0.539	**0.927**
Controlling & monitoring hotel business activities & property including security (e.g., CCTVs)	AP6	**0.844**	0.667	0.565	0.562	**0.935**
Inventory management and control	AP9	**0.839**	0.617	0.536	0.562	**0.954**
Employing staff with ICT skills and expertise so as to be in a position to utilize existing ICTs	MP12	0.702	**0.920**	0.625	0.573	0.629
Consulting staff on any decision on ICT adoption by the hotel so as to incorporate their views	MP2	0.698	**0.914**	0.632	0.565	0.614
Encouraging and rewarding employees with innovative ideas regarding ICT use at the hotel	MP3	0.676	**0.922**	0.587	0.518	0.619
Clearly defining activities and jobs that must be performed using ICTs in the hotel	MP4	0.701	**0.959**	0.612	0.539	0.638
Regular training of staff on new ICT skills to keep update with changing ICT trends in the hotel	MP6	0.735	**0.942**	0.635	0.593	0.675
Providing incentives and motivation to hotel staff to make use of the available hotel ICTs	MP9	0.702	**0.932**	0.580	0.580	0.671
Establishing ICT use procedures and maintenance policies at the hotel to facilitate ease of use	MP1	0.586	0.549	0.500	**0.891**	0.544
Assessing hotel needs with regard to ICT investments before any ICT investment is done	MP10	0.611	0.549	0.537	**0.911**	0.553
Developing strategic and short term plan for ICT adoption and use in the hotel	MP11	0.588	0.552	0.518	**0.915**	0.531

(*Continued*)

Table 7. (Continued).

		Latent variable				
Allocating funds to invest in up to date technology to facilitate hotel business operations	MP5	0.558	0.518	0.501	**0.872**	0.496
Ensuring proper maintenance of available ICT facilities at the hotel to facilitate ease of use	MP7	0.568	0.523	0.507	**0.886**	0.507
Organizing the workplace so that all the ICT facilities and systems are easily accessible for use	MP8	0.609	0.561	0.561	**0.921**	0.527

Note. AIA = actual ICT application; HRMP = human resource management practices; EUF = external use functions; OMP = operational management practices; IUF = internal use functions; CRS = Central Reservation System; PMS = Property Management System; GDS = Global Distribution System. Values in bold shows cases of cross loadings but these are between higher order factor and theirs corresponding lower order factors hence not an issue.

items loading on their respective construct were extremely high than on any other, indicating lack of significant discriminant validity issue. Furthermore, each item's factor loading on its respective construct was highly significant ($p < .001$) as indicated by the bootstrapping output in SmartPLS.

According to the Fornell-Larcker criterion, the square root of each construct's AVE should be greater than its highest correlation with any other construct, except between HOCs and their corresponding LOCs (Hair et al., 2014). Table 8 shows that the study met Fornell-Lacker criterion threshold except for a few constructs, for example, the relationships between IUF and AIA (r = 0.897, square root of AVE = 0.827), EUF and AIA (r = 0.888, square root of AVE = 0.827). Since these are reflectively modeled LOC and HOC constructs, the result rules out any possibilities of a serious issues of discriminant validity problems (Hair et al., 2014). The HTMT ratio of the correlations is the average of the heterotrait-heteromethod correlations (i.e., the correlations of indicators across constructs measuring different phenomena), relative to the average of the monotrait-heteromethod correlations (i.e., the correlations of indicators within the same construct) (Henseler et al., 2014). Using the HTMT as a criterion involves comparing it to a predefined threshold, such as $HTMT_{.85}$, $HTMT_{.90}$, and $HTMT_{inference}$ (Henseler et al., 2014; Kline, 2011; Teo, Srivastava, & Jiang, 2008). Table 8 indicates the HTMT results with values ranging between 0.602 in respect of HTMT (OMP, IUF) and 0.922 in respect of HTMT (IUF, AIA). Comparing these results with the threshold values as defined in $HTMT_{.85}$ (see Henseler et al., 2014) give rise to discriminant validity concern. This is because two of the comparisons 0.922 in respect of HTMT (IUF, AIA) and 0.921 in respect of HTMT (EUF, AIA), violates both the 0.85 and 0.90 thresholds (see Table 8). However, following Hair et al. (2014) suggestions, this is not a validity concern for the study since the comparisons that violates the HTMT criterion relates to the LOC and HOC constructs that are reflectively modeled.

Table 8. Assessing Discriminant Validity Using Fornell-Larcker and Heterotrait-Monotrait Ratio Criteria Results.

	Fornell-Larcker criterion					Heterotrait-monotrait ratio criterion				
	AIA	HRMP	IUF	OMP	EUF	AIA	HRMP	IUF	OMP	EUF
AIA	**0.827**									
HRMP	0.755	**0.932**				0.779				
IUF	0.897[a]	0.657	**0.918**			0.922[a]	0.677			
OMP	0.653	0.603	0.579	**0.899**		0.680	0.626	0.602		
EUF	0.888[a]	0.688	0.594	0.586	**0.934**	0.921[a]	0.707	0.610	0.607	

Note. AIA = actual ICT application; HRMP = human resource management practices; EUF = external use functions; OMP = operational management practices; IUF = internal use functions.

[a]Invalidity issues that occur between HOCs and their corresponding LOCs; the validity issue is of no concern as they are represented in a reflective–reflective higher order model. Bolded values indicate the square root of the average variance extracted values.

The Structural Model

The structural model assessment in PLS-SEM was done on the basis of heuristic criteria that are determined by the model's predictive capabilities rather than applying the measures of goodness of fit (Hair et al., 2014). This involved assessment of collinearity, path coefficients (standardised beta values), coefficient of determination (R^2), the pseudo f-test (f^2 effect size) and the predictive validity of the structural model (Q^2 effect size) (Hair et al., 2014).

The result indicated that the variance inflation factor (VIF) between human resource management practice (HRMP) and AIA was 1.571. Similarly, the VIF value between OMP and AIA was 1.571. All the VIF outputs are much less than the common cut-off threshold of 5 (Hair et al., 2014; Hair, Ringle, & Sarstedt, 2011, 2013; Petter, Straub, & Rai, 2007). Thus, collinearity among the predictor constructs is not an issue in the structural model.

Table 9 shows that estimated path coefficients or standardized beta values (β) computed using the PLS Algorithm function in SmartPLS 3.2.3. To further assess the direction, strength and determine the significance level of the path coefficients using the PLS technique, a resampling bootstrap with bias-corrected and accelerated (BCa) Bootstrap confidence interval method was used. A bootstrap sample of 5,000 was used along with each bootstrap sample containing the same number of observations as the original sample representing completed usable questionnaires received back (i.e., 194 bootstrap cases; Chin, 1998; Hair et al., 2014, 2013). The table shows that all the paths tested in the structural model were significant with the significant level ranging from 5% and below. For example, the tale indicate that OMP positively predicts AIA, $\beta = 0.311$, $t = 5.668$, $p < .001$, CI [0.201, 0.414]. The R^2 value registered for AIA was 0.631, an indication that both OMP and HRMP account for 63.1% of the variance explained in AIA. However, despite

Table 9. Mean, Standard Deviations, *t*-Values, *p*-Values, and Confidence Intervals.

Paths	β	*M*	*SD*	*t* statistics	*p* values	95% CI	Sig.level	Effect size		Conclusion
								f^2	Effect	
HRMP→ AIA	0.567	0.570	0.052	10.876	0.000	[0.463, 0.667]	****	0.555	Large	H2 rejected
OMP → AIA	0.311	0.308	0.055	5.686	0.000	[0.201, 0.414]	****	0.167	Medium	H1 rejected

Note SD = standard deviation; sig. level = significance level; CI = confidence interval; AIA = actual ICT application; HRMP = human resource management practices; OMP = operational management practices.

**** $|t| \geq 3.29$ at p .001 level).

the two ICT-related management practices accounting for 63.1% of the variance in AIA, it's also evident that of the two management practice constructs, human resource management practices (HRMP) have the strongest effect on actual ICT application as indexed by the effect size (f^2) results (see Table 9). For instance, the exogenous constructs HRMP, for explaining the endogenous latent variable AIA have f^2 effect sizes of 0.555. This is a large effect size compared to that of OMP on AIA, which is medium (see Cohen, 1988).

The model capability to predict the endogenous latent construct's indicators adequately was also tested using the Stone-Geiser's Q^2 test (Hair et al., 2014, 2011). This was evaluated through the blindfolding technique included in the SmartPLS 3.2.3 software using an omission distance of 12. A latent construct is said to have predictive relevance if the resulting cross validity redundancy measure value (Q^2) is greater than 0 for the endogenous construct it is predicting (Hair et al., 2011). The Q^2 value for actual ICT application was 0.425. The result indicate that the model fulfils this criterion since the Q^2 value of the endogenous construct (AIA) is greater than 0. This is a further indication that all the exogenous constructs in the model (see Figure 2) adequately predict their corresponding endogenous constructs in the model.

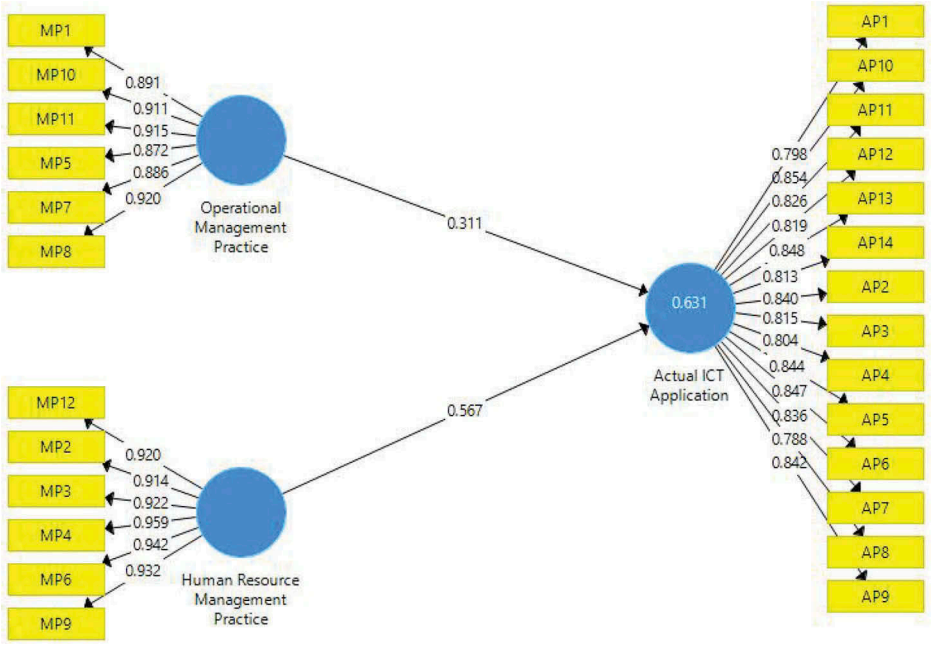

Figure 2. Model depicting influence of management practices on actual ICT application.

Discussions and Implications

The aim of this study was to identify management practices related to ICT adoption and application and identify how they influence actual ICT application among three- to five-star hotels in Kenya. The results show that two sets of management practices, operational management practices and human resource management practices, are influential in defining actual ICT application among three- to five-star hotels in Kenya. Although its argued that there is no best way of managing an entity (Wall & Wood, 2005) and that management practices differ across firms (Bloom & Van Reenen, 2010), when it comes to ICT application among three- to five-star hotel in Kenya, then the two management practices are critical. As a result, the findings suggest that management practices need to be context specific. While limited research has previously been done focusing on influence of management practices and ICT use, the findings support earlier findings of Obonyo et al. (2016) who using a case study approach established key ICT-related management practices among three- to five-star hotels in Kenya. The findings also generally support Siebers et al. (2008) who found that both operational management practices and human resource management practices are significant determinants of productivity, given that ICTs are often used to enhance productivity in organizations. It also corroborates findings of Lee and Lee (2010) who found that human resource management practices affect IT usage under the influence of different sources of IT capabilities.

Despite both management practices being considered appropriate determinants of actual ICT application at the hotel, the findings suggest that human resource management practices had the strongest effect on actual ICT application as compared to operational management practices. While both sets of management practices are important, ICTs once adopted are usually at the disposal of employees who are expected to put them into actual use. Technology generally may pose challenges for the user depending on user expertise and skills and the technicality of the technology being considered. This therefore implies that while focusing on management practices, hotel managers should emphasise more on appropriate management of their personnel, especially in matters regarding employee training, motivation, decision making, and recruitment. This is because even if proper measures are put in place to ensure that the hotel invest in new ICTs and that they are well maintained with policies and procedures laid down on how to use them (operational management practices), a poorly motivated staff may not end up using the ICTs to perform their jobs as expected by the management. Equally, employees without proper training and skills in ICT use may either misuse them or not use them at all. This is in line with Lee and Lee (2010) findings that HRM practices such as employee participation,

formal training and clearly defined jobs significantly predicted IT usage. On a similar note, Wang and Qualls (2007) contended that the ability of employees to use ICTs in an efficient and useful way is an important component of human resource management practices implying the need for formal training.

Limitations and Future Research

This study was conducted in Kenya, particularly in Nairobi and Coast regions targeting top and middle level managers of 36 three- to five-star hotels. While generalizability of the results may be possible, the findings of this research should be interpreted in this context. Furthermore, the data for this study was collected through cross-section research that focuses on data collection over a short period of time. However, in order to understand organizational changes that may take some time to become apparent, longitudinal data would be much more appropriate. As a result, there is a need for further research along this line. The research can also be advanced by including all users of ICT as part of future study and the model developed in this present study tested further.

References

Adeosun, O. O., Adeosun, T. H., & Adetunde, I. A. (2009). Strategic application of information and communication technology for effective service delivery in banking industry. *Journal of Social Sciences*, *5*(1), 47–51. doi:10.3844/jssp.2009.47.51

Ansah, A. K., Blankson, V. S., & Kontoh, M. (2012). The use of information and communication technologies (ICT) in front office operations of chain hotels in Ghana. *International Journal of Advanced Computer Science and Applications*, *3*(3), 72–77. Retrieved on March 20th 2013 from http://www.ijacsa.thesai.org

Baggio, R. (2004). Information and communication technologies in the hospitality industry: The Italian Case. *E-Review of Tourism Research (Ertr)*, *2*(5), 108–114. Retrieved May 20th 2014 from http://ertr.tamu.edu

BarNir, A., & Smith, K. A. (2002). Inter-firm alliances in the small firm: The role of social networks. *Journal of Small Business Management*, *40*(3), 219–232. doi:10.1111/1540-627X.00052

Biagi, F., & Parisi, M. L. (2012). *Are ICT, human capital and organizational capital complementary in production? Evidence from Italian panel data*. (Joint Research Centre Technical Report No. EUR 25542 EN). Luxembourg City, Luxembourg: Publications Office of the European Union. Retrieved from http://www.jrc.ec.europa.eu

Bloom, N., & Van Reenen, J. (2010). Why do management practices differ across firms and countries? *Journal of Economic Perspectives*, *24*(1), 203–224. doi:10.1257/jep.24.1.203

Bresnahan, T., Brynjolfsson, E., & Hitt, L. (2002). Information technology, workplace organization, and the demand for skilled labour: Firm-level evidence. *Quarterly Journal of Economics*, *117*(1), 339–376. doi:10.1162/003355302753399526

Buhalis, D. (2003). *E-tourism: Information technology for strategic tourism management*. London, UK: Pearson (Financial Times/Prentice Hall).

Buhalis, D., & Costa, C. (2006). *Tourism management dynamics trends, management and tools*. Amsterdam, The Netherlands: Elsevier Science and Technology Books.

Buhalis, D., & Law, R. (2008). Progress in information technology and tourism management: 20 years on and 10 years after the Internet—the state of e-tourism research. *Tourism Management*, *29*(4), 609–623. doi:10.1016/j.tourman.2008.01.005

Buhalis, D., & O'Connor, P. (2005). Information communication technology revolutionizing tourism. *Tourism Recreation Research*, *30*(3), 7–16. doi:10.1080/02508281.2005.11081482

Caroli, E., & Van Reenen, J. (2001). Skill-biased organizational change: Evidence from a panel of British and French establishments. *The Quarterly Journal of Economics*, *116*(4), 1449–1492. doi:10.1162/003355301753265624

Chang, H. H. (2008). Intelligent agent's technology characteristics applied to online auctions' task: A combined model of TTF and TAM. *Technovation*, *28*(9), 564–577. doi:10.1016/j.technovation.2008.03.006

Chen, H. H., & Chen, S. C. (2009). The empirical study of automotive telematics acceptance in Taiwan: Comparing three technology acceptance models. *International Journal of Mobile Communications*, *7*(1), 50–65. doi:http://dx.doi.org/10.1504/IJMC.2009.021672

Chen, S. C., Chen, H. H., & Chen, M. F. (2009). Determinants of satisfaction and continuance intention towards self-service technologies. *Industrial Management & Data Systems*, *109*(9), 1248–1263. doi:http://dx.doi.org/10.1108/02635570911002306

Chin, W. W. (1998). The partial least squares approach to structural equation modelling. In G. A. Marcoulides (Ed.), *Modern methods for business research* (pp. 295–358). Mahwah, NJ: Lawrence Erlbaum.

Chin, W. W. (2010). How to write up and report PLS analyses. In V. Esposito Vinzi, W. W. Chin, J. Henseler, & H. Wang (Eds.), *Handbook of partial least squares: Concepts, methods and applications in marketing and related fields* (pp. 655–690). Berlin, Germany: Springer.

Chuttur, M. Y. (2009). Overview of the technology acceptance model: Origins, developments and future directions. *Sprouts: Working Papers on Information Systems*, *9*(37), 1–23.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Lawrence Earlbaum Associates.

Connolly, D. J., & Olsen, M. D. (2000). An environmental assessment of how technology is reshaping the hospitality sector. *Tourism and Hospitality Research*, *3*(1), 79–93. doi:10.1177/146735840100300107

Corigliano, M. A., & Baggio, R. (2006). Tourism, technology, information and the relationship with customers. In K. Weiermair, H. Pechlaner, & T. Bieger (Eds.), *Time shift, leisure and tourism—impacts of time allocation on successful products and services* (pp. 341–352). Berlin, Germany: Erich Schmid-Verlag.

Crystal, I., Leung, R., & Law, R. (2011). Progress and development of information and communication technologies in hospitality. *International Journal of Contemporary Hospitality Management*, *23*(4), 533–551. doi:http://dx.doi.org/10.1108/09596111111130029

Davis, F. (1985). *A technology acceptance model for empirically testing new end user information systems: Theory and results* (Unpublished doctoral dissertation). MIT Sloan School of Management, Cambridge, MA.

Dishaw, M. T., & Strong, D. M. (1999). Extending the technology acceptance model with task-technology fit constructs. *Information & Management*, *36*(1), 9–21. doi:10.1016/S0378-7206(98)00101-3

Dorgan, S. J., & Dowdy, J. J. (2004). When IT lifts productivity. *Mckinsey Quarterly*, *4*, 9–11. Retrieved from http://akson.sgh.waw.pl/~tszapiro/zwiad/necm/When_IT_lifts_productivity.pdf

Drohan, R., Foley, A., & Lynch, P. (2009, June). Utilising the resource-based view (RBV) to enhance CRM practices in Irish hotels. *Proceedings of the tourism and hospitality research in Ireland conference (THRIC)*. Dublin, Ireland: DIT.

Duffy, S. (2010, June). Factors influencing technology adoption amongst tourism SMEs. *Tourism and hospitality research in Ireland Conference*. Shannon, Ireland: Shannon College.

Eze, A. A. (2013). *Management practice in an organization*. Retrieved from http://www.aiu.edu/applications

Gouthier, M., & Schmid, S. (2003). Customers and customer relationships in service firms: The perspective of the resource-based view. *Marketing Theory*, *3*(1), 119–143. doi:10.1177/1470593103003001007

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2014). *A primer on partial least squares structural equation modelling (PLS-SEM)*. Thousand Oaks, CA: Sage.

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. *Journal of Marketing Theory and Practice*, *19*(2), 139–152. doi:10.2753/MTP1069-6679190202

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2013). Partial least squares structural equation modelling: Rigorous applications, better results and higher acceptance. *Long Range Planning*, *46*(1/2), 1–12. Retrieved from http://www.sciencedirect.com/science/journal/00246301/46/1-2 doi:10.1016/j.lrp.2013.01.001

Hashim, J. (2007). Information communication technology adoption among SME owners in Malaysia. *International Journal of Business and Information*, *2*(2), 221–239. Retrieved from http://52.68.60.251/ojs/index.php/ijbi/article/view/20/22

Henseler, J., Dijkstra, T. K., Sarstedt, M., Ringle, C. M., Diamantopoulos, A., Straub, D. W., … Calantone, R. J. (2014). Common beliefs and reality about partial least squares: Comments on Rönkkö & Evermann (2013). *Organizational Research Methods*, *17*(2), 182–209. doi:10.1177/1094428114526928

Henseler, J., Ringle, C. M., & Sinkovics, R. R., Eds.. 2009. *Advances in International Marketing*, *2*, 277–320. doi:10.1108/s1474-7979(2009)0000020014

Hospitality Technology. (2002). *2nd annual lodging industry technology study*. Retrieved from http://htmagazine.com/2002_LITS/

International Federation for IT and Travel & Tourism. (2013). *Information and communication technologies in tourism*. Retrieved from http://www.ifitt.org

International Labour Organization. (2010, November). Developments and challenges in the hospitality and tourism sector. In *Issues paper (GDFHTS/2010) for discussion at the Global Dialogue Forum for the Hotels, Catering, Tourism Sector* (pp. 1–52). Geneva, Switzerland: ILO Sectoral Activities Programme.

Kline, R. B. (2011). *Principles and practice of structural equation modelling*. New York: Guilford Press.

Korpelainen, E. (2011). Theories of ICT system implementation and adoption—A critical review. *Working Paper*. Espoo, Finland: Aalto University, School of Science, Department of Industrial Engineering and Management.

Lee, C. S., & Lee, C. H. (2010). Effects of HRM practices on IT usage. *Journal of Computer Information Systems*, *50*(2), 83–94. doi:10.1080/08874417.2009.11645387

Lin, C. H., Shih, H. Y., & Sher, P. J. (2007). Integrating technology readiness into technology acceptance: The TRAM model. *Psychology and Marketing*, *24*(7), 641–657. doi:10.1002/mar.20177

Luke, C. (2011). Best management practices. *Journal of Management Development*, *30*(1), 93–105. doi:http://dx.doi.org/10.1108/02621711111098398

Magnini, V. P., Honeycutt, E. D., & Hodge, S. K. (2003). Data mining for hotel firms: Use and limitations. *Cornell Hotel and Restaurant Administration Quarterly*, *44*(2), 94–105. doi:10.1016/S0010-8804(03)90022-X

McLeod, B. (2010). Contingency theory. In *International encyclopaedia of hospitality management* (2nd ed., pp. 106–107). Amsterdam, The Netherlands: Butterworth Heinemann.

Mihalič, T., & Buhalis, D. (2013). ICT as a new competitive advantage factor: Case of small transitional hotel sector. *Economic and Business Review*, *15*(1), 33–56.

Mutua, J. M., & Wasike, W. S. K. (2009). ICT adoption and performance of small-medium-sized enterprises in Kenya. *Special research project on ICT and economic development in Africa" Submitted to African Economic Research Consortium (AERC), Nairobi, Kenya*. Retrieved from http://www.aercafrica.org

Obonyo, G. O., Okeyo, D. O., & Kambona, O. O. (2016). Key management practices that influence actual ICT application among three to five star hotels in Kenya. *Journal of Business Management & Social Sciences Research*, *5*(2), 67–73.

Olum, Y. (2004). *Modern management theories and practices. 15th East African central banking course*. Nairobi, Kenya: Kenya School of Monetary Studies.

Petre, A., Stegerean, R., & Gavrea, C. (2012). Approaches in organizational management. In *The 6th International Management Conference* (pp. 591–598). Bucharest, Romania Retrieved from http://conferinta.management.ase.ro.

Petter, S., Straub, D., & Rai, A. (2007). Specifying formative constructs in information systems research. *MIS Quarterly*, *31*(4), 623–656.

Pitt, L., Van Der Merwe, R., Berthon, P. R., Salehi-Sangari, E., & Caruana, A. (2006). Global alliance networks: A comparison of biotech SMEs in Sweden and Australia. *Industrial Marketing Management*, *35*(5), 600–610. doi:10.1016/j.indmarman.2005.04.009

Poon, A. (1993). *Tourism, technology and competitive strategies*. Oxford, England: CAB International.

Praničević, D. G., Alfirević, N., & Štemberger, M. I. (2011). Information system maturity and the hospitality enterprise performance. *Economic and Business Review*, *13*(4), 227–249.

Rajala, R., & Westerlund, M. (2010, January). *Antecedents to consumers' acceptance of mobile advertisements—a hierarchical construct PLS structural equation model*. The 43rd Hawaii International Conference on System Sciences (HICSS), University of Hawaii at Manoa, Hawaii.

Rogers, E. M. (1995). *Diffusion of innovations* (5th ed.). New York, NY: Free Press.

Sahadev, S., & Islam, N. (2005). Why hotels adopt ICTs: A study on the ICT adoption propensity of hotels in Thailand. *International Journal of Contemporary Hospitality Management*, *17*(5), 391–401. doi:http://dx.doi.org/10.1108/09596110510604814

Salim, I. S., Shayo, H., Abaho, E., & Sheikh, M. A. (2013). State of affairs in ICT usage within tourist hotel operations: A case of Zanzibar. *Journal of Research in International Business and Management*, *3*(6), 180–187.

Shaw, E. (2006). Small firm networking: An insight into contents and motivating factors. *International Small Business Journal*, *24*(1), 5–29. doi:10.1177/0266242606059777

Siebers, P. O., Aickelin, U., Battisti, G., Celia, H., Clegg, C., Fu, X., … Peixoto, A. (2008, February). Enhancing productivity: The role of management practices. *AIM Working Paper Series, 062*, 1–42.

Sirirak, S., Islam, N., & Khang, D. B. (2011). Does ICT adoption enhance hotel performance? *Journal of Hospitality and Tourism Technology*, *2*(1), 34–49. doi:10.1108/17579881111112403

Teo, T. S. H., Srivastava, S. C., & Jiang, L. (2008). Trust and electronic government success: An empirical study. *Journal of Management Information Systems*, *25*(3), 99–132. doi:10.2753/MIS0742-1222250303

Vagias, W. M. (2006). *Likert-type scale response anchors*. Clemson, South Carolina: Clemson International Institute for Tourism & Research Development, Department of Parks, Recreation and Tourism Management, Clemson University.

Van Dalen, D. B. (1979). *Understanding educational research* (4th ed.). New York, NY: McGraw Hill.

Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management Science*, *46*(2), 186–197. doi:10.1287/mnsc.46.2.186.11926

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, *27*(3), 425–478.

Vrdoljak, I., & Bukvić, I. (2004). New management practice in the hotel business—the case of the hotel Excelsior. *Management*, *9*(1), 93–112. doi:http://dx.doi.org/10.1287/mnsc.46.2.186.11926

Wall, T. D., & Wood, S. J. (2005). Romance of human resource management and business performance, and the case for big science. *Human Relations*, *58*(5), 429–462. doi:10.1177/0018726705055032

Wang, Y., & Qualls, W. (2007). Towards a theoretical model of technology adoption in hospitality organizations. *International Journal of Hospitality Management*, *26*(3), 560–573. doi:10.1016/j.ijhm.2006.03.008

Wetzels, M., Odekerken-Schröder, G., & Van Oppen, C. (2009). Using PLS path modelling for assessing hierarchical construct models: Guidelines and empirical illustration. *MIS Quarterly*, *33*(1), 177–195.

Zelenka, J. (2009). Information and communication technologies in tourism—influence, dynamics, trends. *Informační Management*, *1*, 123–132.