

The Impact of Information and Communication Technologies (ICTs) on Enhancing Performance in Hurghada Travel Agencies and Hotels

Hussein Abdel Wahab Abdel Rady

Associate Professor - Tourism Studies Department
Faculty of Tourism and Hotels - Minia University

Hussien Mohamed Hussien

Lecturer, Hotel Management Department,
Faculty of Tourism and Hotels, Minia University

Abstract

The research aims to assess the current situation's use of ICTs and their impact on enhancing performance in Hurghada travel agencies and hotels. This research applied a descriptive-analytical methodology. The study population was managerial departments in travel agencies and hotels. Two hundred (200) questionnaires were distributed as a sample of the study; only 165 returned questionnaires were valid for data analysis with a response rate of 82.5% of the total distributed questionnaires in travel agencies and only 160 returned questionnaires were valid for data analysis with a response rate of 80 % of the total distributed questionnaires in hotels. Several findings came out of the research; the significant relationship between the use of ICTs in travel agencies, the role of ICTs in the development of travel agencies' services, and the impact of ICTs' use on the performance of travel agencies; the significant relationship between the use of ICTs in hotels, the role of ICTs in the development of hotels' services, and the impact of ICT use on the performance of hotels. The research thus recommended that travel agencies and hotel management

include ICTs in their strategy and improve their employees' awareness of ICT competence and trends. Travel agencies and

hotel management should regularly study customer evaluations and comments made on various electronic platforms to better understand their travel agency and hotel performance and consumer preferences, allowing them to design better marketing and pricing strategies.

Keywords: (ICTs), Enhancing, Performance, Travel Agencies, Hotels, Hurghada, Egypt.

1. Introduction

The tourism and hospitality industries are undergoing a radical transformation as a result of the incorporation of information technology into their strategic operations (Law et al., 2014). ICTs are wide digital technologies that allow access to, convey, store, and update data via networks. (Ezzaouia & Bulchand-Gidumal, 2020). Reservation systems (CRSs), customer relationship management systems (CRMs), global distribution systems (GDSs), property management systems (PMSs), knowledge

management systems (KMSs), mobile applications, and social media platforms such as Facebook, Twitter, and Instagram are just some of the technologies that are used in the hospitality industry today (such as Facebook, Twitter, and Instagram) (Gonzalez et al., 2017; Kumar et al., 2020).

To cope with increasingly changing settings, several hotels and travel agencies have used ICTs (Berne et al., 2015). Some of the ICTs applications that have been widely adopted throughout sectors include reservation systems, procurement and inventory systems, wireless internet, e-mail, electronic transactions, and hotel websites (Januszewska et al., 2015; Ray et al., 2021). ICTs adoption, according to travel agencies and hotel management, is a critical success factor in improving travel agencies and hotels performance (Khan & Hossain, 2018; Gossling, 2020). Improving operational productivity and customer happiness is viewed as a critical problem for long-term survival and success (Khatri, 2019; Singh & Dhankhar, 2020). The adoption of ICTs in travel agencies and hotels has several advantages. Reduced operating expenses, improved customer happiness, increased market share, and improved staff performance are just a few advantages (Jaremen, 2016; Ilkan et al., 2017; Styven & Wallstrom, 2019). Several studies have investigated the impact of ICTs adoption on travel agencies and hotels performance (Chevers, 2015; Marusic et al., 2019; Garbin & Mandic, 2020). The results differ according to certain studies. Investing in ICTs may improve the efficiency and effectiveness of travel agencies and hotels (Hwang et al., 2019; Sukthankar et al., 2020). As a result, greater research into the link between ICTs adoption and the performance of travel agencies and hotels will be beneficial. Furthermore, studies in the context of developing nations are scarce, and studies

in this area would be beneficial to travel agencies and hotel management, as well as the tourism and hospitality industries in these countries. However, research on the impact of ICTs adoption on the performance of travel agencies and hotels is scarce, particularly in the context of Egypt's travel agencies and hotel industry (Damnjanovic, 2016; Trang & Thao, 2019).

Research Problem

The problem of research stems from lack of awareness by travel agencies and hotels in Hurghada of the role played by information technology in providing information that allows them to develop in many fields to ensure the success of travel agencies and hotels in a complex environment, especially as we live in unusual circumstances. Although the management of travel agencies and hotels has a genuine and serious desire to focus on various types of technological development, including e-tourism, work in this area is still limited, and we have no control over it. Based on this, the research problem can be crystallized into the following **questions**:

1. What is the importance of ICTs in travel agencies and hotels in Hurghada?
2. How can e-tourism, as one of the forms of ICTs, contribute to the development of the nature of services provided by travel agencies and hotels in Hurghada?
3. What are the opportunities of ICTs adoption in travel agencies and hotels?
4. What are the challenges of ICTs adoption in travel agencies and hotels?
5. What are the positive and negative impacts of ICTs adoption on travel agencies' and hotels' performance?
6. What are the practical implications of ICTs adoption in travel agencies and hotels?

Research Aim

1. Assessing the current situation's use of ICTs and their impact on enhancing performance in Hurghada travel agencies and hotels.
2. Investigating the opportunities and challenges for ICTs adoption in travel agencies and hotels.
3. Identifying the positive impact of ICTs adoption on travel agencies and hotels performance; to uncover the negative impact of ICTs on travel agencies and hotels performance.
4. Providing recommendations and solutions to travel agencies and hotels in order to benefit from technological information in determining the appropriate level of performance to ensure their success and development.

2. Literature Review

2.1. Concept of ICTs in Travel Agencies and Hotels

ICTs are technologies that combine computing with high-speed data, sound, and video transmission channels (Mupfiga, 2015). Computer hardware, software, and telecommunication services store, modify, convert, protect, send, and receive data and information. Specific ICTs hardware includes computers, fax machines, telephones, cellular technologies, e-mails, and the Internet (Akyeampong & Nutsugbodo, 2017). ICTs are the types of technologies used to produce, collect, store, transmit, retrieve, and govern the transmission of processed data (Awusiedu, 2019).

2.2. Benefits of ICTs Adoption in Travel Agencies and Hotels

ICTs are crucial in strategically managing travel agencies and hotels (Abir and Khan, 2022). Greater guest services to satisfy rising consumer demands, improved cost management, more effective marketing

tactics, and increased prospects for travel agencies and hotels may be possible with the efficient and timely implementation of new ICTs applications (Piccoli, 2008; Gretzel & Stankov, 2021). It is self-evident that investments in ICTs would boost travel agencies and hotel productivity, save expenses, and add value to the services and goods they provide to their consumers (Jaremen, 2016; Gossling, 2021). Using information technology has led to significant competitive, cost-cutting, efficiency, and information-sharing advantages (Tichaawa et al., 2017). Travel agencies and hotels' information technology types differ dramatically (Werthner et al., 2015; Cai et al., 2019). The internet, intranet-mail links, electronic trading, central reservation systems, and web applications are only a few examples of ICTs applications that have been widely used in the sector (Marzouk, 2020). Travel agencies and hotels benefit considerably from modern ICTs applications, which are a constantly rising trend (Law et al., 2015; Chang et al., 2019). Travel agencies and hotels, for example, use ICTs to promote their services, make reservations, and assess customer complaints and recommendations (Unal & Ozkan, 2016; Gonzalez et al., 2019).

2.3. Opportunities for ICTs Adoption in Travel Agencies and Hotels

If ICTs are properly directed, they can assist travel agencies in gaining a competitive advantage by allowing them to differentiate their products and services (Gupta et al., 2019), which can be assimilated with organizational performance as a strategic renewal or new product development and innovation (Akdu, 2020). Investment in ICTs in travel agencies and hotels benefits them by allowing customers to have a better experience. According to Fuza et al. (2015), it is critical for travel agencies and hotel experts to implement ICTs in their businesses early on

in order to improve service quality (Kourtesopoulou et al., 2019). There are many more benefits that can be obtained through the adoption of ICTs, such as lower operational costs, improved customer satisfaction, increased market share, and increased operational efficiency (Alsarayreh & Salt, 2018; Rahman et al., 2022), all of which are linked to increased profits and sales targets (Alsarayreh & Salt, 2018; Rahman et al., 2022).

2.4. Challenges of ICTs Adoption in Travel agencies and Hotels

Travel agencies and hotel enterprises may face challenges due to ICTs investments (Morais et al., 2016). Travel agencies and hotels may express concerns about the obsolescence of new technologies, technological complexity, implementation issues, and rising demands for more skilled people and extra technology resources (Dewan et al., 2007; O'Neill and Carlback, 2011; Shrestha & Jeong, 2021). In addition to these hazards, new technology research and development has a high initial capital cost (Sorokina et al., 2016; Okumus et al., 2017), the possibility of failure in uncertain market conditions (Mayock, 2011; Awusiedu, 2019), and higher operation and maintenance costs. (Mithas & Rust, 2016; Sorokina et al., 2016; Okumus et al., 2017).

Furthermore, travel agencies and hotels have numerous challenges in adopting new technologies due to various factors such as lack of staff expertise and resources, the importance of other industries, and lack of time to implement new technology (Mogollon et al., 2010; Riskey & Moore, 2013; Januszewska et al., 2015). In addition, Pillay (2016) stated that as a result of the introduction of ICTs, processes, and people in an organization must undergo significant change, learning, adaptation, and growth. Hashim (2015) investigated the barriers to

implementing travel agencies and hotels and discovered that the cost of implementation within the organization was the most important factor, followed by lack of well-trained staff, security concerns, difficult-to-manage travel data, and lack of training. Furthermore, Talwar et al. (2020) divided the barriers to ICTs adoption into four categories: technical challenges, lack of understanding, partner engagement, and security.

2.5. Impact of ICTs on Travel Agencies and Hotels' Performance

The tourism and hotel industry is one of the world's fastest expanding industries, and it has made a significant contribution to the country's economic growth (Aramendia Muneta & Ollo Lopez, 2013; Chege et al., 2020). The use of ICTs in product and service design, as well as significant improvements in hotels and travel agencies, have all contributed to this success (Mihajlovic, 2012; Navio-Marco et al., 2018). The use of ICTs in travel agencies and hotels is an important factor in increasing the efficiency of these businesses through internal metrics such as increased productivity, increased market share, and improved customer satisfaction (Berne et al., 2015; Sintala, 2019). These studies also imply that using ICTs in the tourism and hotel sector has several advantages, including lower operational costs, increased customer happiness, increased market share, and improved employee performance (Sirirak et al., 2011; Yoo et al., 2021; Kazakov et al., 2020).

After using new technology, several travel agencies and hotels have seen improved financial results (Melian-Gonzalez and Bulchand-Gidumal, 2016). According to Piccoli and Pigni (2016), ICTs applications may help travel agencies and hotels gain competitive advantages by cutting operating costs, offering extra value, boosting agility, reducing service processing time, and

generating new goods and services. Self-service technology, for example, has been used successfully to reduce staff costs, improve operational efficiency, improve the image of travel agencies and hotels, and improve customer experience (Liu and Hung, 2019; Romero & Tejada, 2020). ICTs have a favorable influence on the income of hotels and travel agencies (Hua et al., 2015). The tourism and hotel industries have embraced ICTs to improve the overall performance of travel agencies and hotels in areas such as productivity, efficiency, and customer happiness (Kim and Qu, 2014; Melian-Gonzalez and Bulchand-Gidumal, 2016).

However, investments in ICTs have a detrimental influence on the performance of travel agencies and hotels (Jameel et al., 2017; Law et al., 2019). Furthermore, prior research has shown that it is rare to discover hospitality companies that did not receive a sufficient return on their ICTs investments (Sava & Mateia, 2016; Phillips et al., 2017). First, ICTs investments may be costly, and the long-term success of a new ICTs adoption is determined by consumers' continuous use of the most recent technology rather than its original deployment (Sirirak et al., 2011; Hofman et al., 2016). Second, the delay between investing in and adopting technology and seeing its expected results might be lengthy, discouraging proper adoption (Bethapudi, 2013; Lad & Waghmare, 2020). Third, ICTs investment must be closely linked to the overall business strategy of travel agencies and hotels (Mithas et al., 2012; Trang & Thao, 2019), and it must be followed by intensive training for all involved employees on how to properly operate the newly implemented technology (Law et al., 2013; Hua et al., 2020).

2.6. ICTs Applications in Travel Agencies and Hotels

Travel agencies have included ICTs in their marketing and management strategies (Law et al., 2014; Navio-Macro et al., 2018). Internet, social media, and mobile technologies like as Global Positioning Systems (GPS), Geographic Information Systems (GIS), Global Distribution Systems (GDSs), and reservation systems like Amadeus and Sabre connect different stakeholders and may connect with travelers in new and different ways (Benkendorff et al., 2018; Pesonen & Neidhardt, 2019; Calvaresi et al., 2021).

Hotels linked to ICTS can be separated into two types: back-office functions and front-office requirements (Jadhav & Mundhe, 2011; Sardar, 2021). Back-office technologies include inventory management, financial reporting, menu management, security management, green technology, staff management, and data storage (Chevers, 2015; Masaki et al., 2021). Front-office technology such as point of sale (POS) and property management system (PMS) are widely used (Katsoni, 2015; Stankov et al., 2019). Bilgihan et al. (2011) and Singh et al. (2012) classified front-office apps (Fidelio, Opera, and Comsys), back-office apps, restaurant and banquet management systems, and guest-related interface applications into four categories.

3. Research Methodology

The researchers utilized a descriptive-analytical technique in which they attempted to describe their findings; the research aims to assess the current situation's use of ICTs and their impact on enhancing the performance of travel agencies and hotels in Hurghada. From the standpoint of management in travel agencies and hotels, this is the best approach to describing the phenomenon in question, in which researchers attempt to describe the subject of the study, analyze the data, compare, explain, and assess in the hope of

reaching meaningful generalizations to increase and enrich knowledge on the subject.

3.1. Data Collection

Data was collected through a questionnaire that was matched to the situation in order to reduce the number of incorrect answers. In Hurghada City, they were given to the managerial departments of travel agencies and hotels.

3.2. Measures

The research employed a descriptive-analytical methodology by using a questionnaire tool. A survey consisting of five sections is used as a data collection tool. The first section includes socio- demographics of managerial departments at travel agencies and hotels' profiles (gender, educational level, monthly income, and job experience). The second section included ten variables representing ICTs in travel agencies and hotels. The third section included 12 variables representing the role of ICTs in the development of travel agencies and hotel services. The fourth section included seven variables representing the impact of ICTs used on the performance of travel agencies and hotels. The fifth section included six variables representing the challenges of applying ICTs in travel agencies and hotels.

3.3. Data Validity and Reliability

3.3.1. Data Validity

The questionnaire forms were given to many Hurghada travel agencies and hotel managerial departments to validate the data collection instrument in terms of usability, format, and ability to measure study components as per the researchers' directions. After receiving feedback from specialists in the field, the survey questionnaire was modified and enhanced. Furthermore, the experts expressed interest in the questionnaire instrument and communicated with the researchers, adding to its validity.

3.3.2. Data Reliability

Before moving on to the next step of the study, reliability testing was conducted to check that the measurements were consistent throughout the questionnaire's numerous questions. Indeed, a measure's dependability reveals the instrument's stability and consistency. As a result, this technique establishes reliability by looking at the internal consistency of the research instrument, such as the questions in a questionnaire that are typically offered. Cronbach's alpha is a commonly used statistic for determining the dependability of a scale. Its index runs from 0.0 to 1.0. Researchers should aim for a number closer to 1.0, indicating that the study's instrument is reliable and consistent. It's worth noting, however, that in the social sciences, a threshold value of 0.7 is deemed acceptable.

Table 1: Cronbach's Alpha Value for Impact of ICTs on Enhancing Performance in Hurghada Travel Agencies and Hotels

Variables	Travel Agencies			Hotels		
	No. of items	Cronbach's Alpha Value	Validity Coefficient *	No. of items	Cronbach's Alpha Value	Validity Coefficient *
Use of ICTs in travel agencies and hotels.	10	0.964	0.982	10	0.732	0.856
The role of ICTs in the development of travel agencies and hotels services	12	0.976	0.988	12	0.765	0.875
The impact of ICTs use on the performance of travel agencies and hotels	7	0.958	0.979	7	0.760	0.872
Challenges of applying ICTs in travel agencies and hotels	6	0.918	0.958	6	0.868	0.932
Total	35	0.966	0.983	35	0.745	0.863

* Validity coefficient = $\sqrt{\text{Reliability coefficient}}$

The alpha coefficient of Cronbach's alpha test was used to assess the internal consistency and reliability of the study's constructs in order to guarantee validity. Measured scale reliabilities varied from 0.918 to 0.976 in travel agencies and from 0.732 to 0.868 in hotels, with a total of 0.745 in hotels for the total number of questionnaire items. In travel agencies, Cronbach's Alpha was (0.966) for all scales, whereas in hotels, it was (0.745). When the Cronbach's Alpha value exceeds a certain threshold, this signifies that the field is acceptable (0.7). According to this study, travel agencies have a validity coefficient of 98%, while hotels have a validity coefficient of 86.3%, indicating the research sample's reliability and validity.

3.4. Data Analysis

To accomplish the goal of this examination, the scientists utilized an enlightening logical methodology. Scientists utilize the Statistical Package for Social Sciences (SPSS) to deal with information measurably. The treatment incorporated the following measurable strategies:

- Frequencies, Percentages, Means, and Standard Deviation (Std) are used to describe the characteristics of the study

4.2. Descriptive analysis

First Section: Demographic Characteristics of Respondents

Table2: The Demographic Profile of the Sample Elements

Variable		Travel Agencies		Hotels	
		Frequency	Percentage (%)	Frequency	Percentage (%)
Gender					
	Male	119	72.1	138	86.3
	Female	46	27.9	22	13.8
Monthly Income					
	Less than 1000	5	3	3	1.9
	1000-2999	17	10.3	20	12.5
	3000-5999	74	44.8	67	41.9
	6000-8999	29	17.6	35	21.9

population in relation to the relevant variables and to ascertain how its members respond to the research objectives.

- Cronbach's Alpha Test: To determine the survey's steadiness coefficients and the coefficient of each examination axis' hub's soundness.
- The Pearson Correlation test.

4. Results and Discussion

The outcomes of the five dimensions reflecting the findings are explained in the next section. Use of ICTs and their impact on enhancing performance in Hurghada travel agencies and hotels.

4.1. Sample Characteristics

The questionnaire sample covered managerial departments in travel agencies and hotels in Hurghada city. Two hundred (200) questionnaires were distributed as a sample of the study; only 165 returned questionnaires were valid for data analysis with a response rate of 82.5% of the total distributed questionnaires in travel agencies, and only 160 returned questionnaires were valid for data analysis with a response rate of 80.0% of the total distributed questionnaires in hotels.

	9000 and Above	40	24.2	35	21.9
Education level					
	Secondary Education	5	3	24	15
	High Education	138	83.6	126	78.8
	Postgrad Education	22	13.3	10	6.3
Job Experience					
	Less than five years	33	20	14	8.8
	5-10 years	52	31.5	49	30.6
	11-15 years	35	21.2	42	26.3
	More than 15 years	45	27.3	55	34.3

Socio-demographic of managerial departments in travel agencies' profiles

Table (2) shows the demographic profile of the study through four sections: gender, monthly income, educational level, and years of experience in the current travel agencies. In the first section concerning gender, more than half of the respondents are male, corresponding to 119 (72.1%), and only 46 are female (27.9%). The second section (monthly income) concerned reflecting the monthly income of respondents, while the "3000-5999" category represented the highest percentage of managerial departments (44.8%). The third section (Educational Level) dealt with the sample's educational background, and it reveals that the majority (83.6%) of respondents had a high education. The section concerned the years of experience in the current travel agencies and reflected that the majority (31.5%) of the sampled travel agencies had been around 5–10 years, while the percentage (27.3%) represented

employees who had been around more than 15 years.

Socio-demographic of managerial departments profile in hotels

In the first section concerning gender, more than half of the respondents are male, corresponding to 138 (86.3%), and only 22 are female (13.8%). The second section (monthly income) concerned the reflection of the monthly income of respondents, while the "3000-5999" category represented the highest percentage of managerial departments (41.9%). The third section (Educational Level) concerned the educational background of the sample, and it reflected that the majority (78.8%) of respondents had a high education. The fourth section concerned the years of experience in the current hotels and reflected that the majority (34.3%) of the sampled hotels had more than 15 years, while the percentage (30.6%) represented employees who spent around 5–10 years.

Part Two: Use of ICTs in Travel Agencies and Hotels

Table3: Use of ICTs in Travel Agencies and Hotels

Variables	Travel agencies				Hotels			
	Mean	Standard Deviation	Rank		Mean	Standard Deviation	Rank	
			Attitude				Attitude	
Travel agencies and hotel management are committed to adopting a philosophy based on computer technologies by all employees in their work.	2.68	.539	1	High	2.74	.649	6	High
Travel agencies and hotel management have enough employees with experience and expertise in using and developing electronic	2.59	.615	4	High	2.52	.839	8	High

tourist sites.								
Travel agencies and hotel management are concerned about information security and have secured a network to protect the databases.	2.55	.619	7	High	2.96	.191	1	High
Travel agencies and hotel management conduct research using computer technologies and other websites in order to measure and assess the performance level of their employees.	2.41	.724	10	High	2.26	.899	10	moderate
Travel agencies and hotel management devoted a portion of their profits to training and developing their employees in electronic tourism.	2.48	.569	9	High	2.50	.809	9	High
Travel agencies and hotel management strive to continuously evaluate the strengths and weaknesses of using and visiting various websites.	2.58	.625	5	High	2.84	.500	4	High
Travel agencies and hotel management continually update and develop equipment and software for online use.	2.58	.681	6	High	2.92	.317	2	High
Travel agencies and hotel management are interested in reviewing worldwide tourist and hospitality websites in order to constantly update their services.	2.62	.620	2	High	2.81	.540	5	High
Management of travel agencies or a hotel visits numerous websites in order to find the necessary solutions to the problems that their travel agencies and hotel and the services they provide are facing.	2.55	.629	8	High	2.90	.375	3	High
Travel agencies and hotel management are interested in websites that provide numerous job possibilities in the tourist sector as a competitive advantage.	2.59	.625	3	High	2.71	.667	7	High
Total Mean	2.56	High			2.71	High		

Use of ICTs in Travel Agencies

Table (3) presents the means and standard deviations of the use of ICTs in travel agencies, which ranged between (2.68–2.41) compared with the total instrument mean (2.56). The statement "travel agencies are committed to adopting a philosophy based on the use of computer technologies by all employees in their work" came out on the first rank (mean \pm SD = 2.68 \pm 0.539). The item "travel agencies conduct research using computer technologies and other websites in order to measure and assess the performance level of their employees." came out on the last rank (mean \pm SD = 2.41 \pm 0.724).

Use of ICTs in Hotels

Table (3) presents the means and standard deviations of the use of ICTs in hotels, ranged between (2.96 – 2.26) compared with the total instrument mean (2.71). The statement "Hotel management is concerned about information security and has secured a network to protect the databases" came out on the first rank (mean \pm SD = 2.96 \pm 0.191). The statement "Hotel management conducts research using computer technologies and other websites in order to measure and assess the performance level of their employees." came out on the last rank (mean \pm SD = 2.26 \pm 0.899).

Part Three: The Role of ICTs in the Development of Travel Agencies and Hotels' Services

Table4: The role of ICTs in the Development of Travel Agencies and Hotels' Services

Variables	Travel agencies				Hotels			
	Mean	Standard Deviation	Rank		Mean	Standard Deviation	Rank	
			Attitude				Attitude	
Travel agencies and hotel management have a comprehensive and efficient communication network for displaying and providing tourist services via the internet.	2.51	.686	2	High	2.88	.394	8	High
Travel agencies and hotel management prefer to communicate with current and prospective customers through electronic websites instead of traditional methods.	2.39	.778	7	High	2.98	.157	4	High
Travel agencies and hotel management are committed to informing consumers about the importance of using websites to receive the necessary tourism services.	2.37	.813	9	High	2.76	.591	10	High
Management of travel agencies and hotels strives to improve the quality of their tourist services by communicating with customers and soliciting feedback through various websites.	2.41	.772	6	High	2.98	.223	5	High
Travel agencies and hotel management are concentrating on using numerous websites to cut production costs and develop their services.	2.44	.727	5	High	2.88	.431	7	High
Travel agencies and hotel management are interested in expanding their consumer base locally and globally through numerous websites.	2.51	.729	3	High	2.98	.136	3	High
Travel agencies and hotel management are committed to using websites to get enough information about other competitors' services to boost competitiveness.	2.58	.672	1	High	2.69	.691	12	High
Travel agencies and hotel management regularly monitor their consumers' positive and negative comments on social media platforms.	2.44	.727	4	High	2.96	.259	6	High
Travel agencies and hotel management would want to use specialized and trustworthy tourist cards with monetary value to allow their customers to buy and book through their website.	2.34	.845	11	High	2.76	.588	9	High
Travel agencies and hotel have agreed to participate in seminars and festivals that illustrate the importance of ICTs in increasing services, lowering costs, and making supplying them easier.	2.30	.752	12	moderate	2.71	.658	11	High
Travel agencies and hotel management established a dedicated website to handle complaints from prior customers.	2.38	.719	8	High	2.99	.111	2	High
Travel agencies and hotel management are interested in maintaining constant communication with consumers who have previously dealt with them through their websites in order to notify them of any new offers from their current offerings.	2.37	.767	10	High	3.00	.000	1	High
Total Mean	2.42	High			2.88	High		

The role of ICTs in the Development of Travel Agencies' Services

Table (4) presents the means and standard deviations of the role of ICTs in the development of travel agencies' services, ranged between (2.58– 2.30) compared with the total instrument mean for the domain (2.42). The statement "Travel agencies are committed to using websites to get enough information about the services offered by other competitors in order to boost their competitiveness." came out on the first rank (mean \pm SD 2.58 \pm 0.672). The statement "The travel agencies have agreed to participate in seminars and festivals that illustrate the importance of ICTs in increasing services, lowering costs, and making the process of supplying them easier" came out on the last rank (mean \pm SD = 2.30 \pm 0.752)

The role of ICTs in the Development of Hotels' Services

Table (4) presents the means and standard deviations of the role of ICTs in the development of hotels' services, ranged between (3.00 – 2.69) compared with the total instrument mean for the domain (2.88). The statement "The hotel's management is interested in maintaining constant communication with consumers who have previously dealt with them through their websites in order to notify them of any new offers from their current offerings." came out on the first rank (mean \pm SD 3.00 \pm 0.000). The statement "Hotel management is committed to using websites to get enough information about the services offered by other competitors in order to boost their competitiveness" came out on the last rank (mean \pm SD = 2.69 \pm 0.691).

Part Four: The Impact of ICTs Use on the Performance of Travel Agencies and Hotels

Table 5: The Impact of ICTs in Use on the Performance of Travel Agencies and Hotels

Variables	Travel agencies				Hotels			
	Mean	Standard Deviation	Rank		Mean	Standard Deviation	Rank	
			Attitude				Attitude	
The use of ICTs in travel agencies and hotels considerably enhances and boosts service efficiency.	2.76	.562	3	High	2.98	.221	1	High
The use of ICTs has helped improve the performance and productivity of travel agencies and hotels.	2.80	.471	2	High	2.81	.552	5	High
ICT use in the travel agencies and hotels significantly increased annual revenue.	2.65	.713	6	High	2.66	.701	6	High
ICTs in travel agencies and hotels have strengthened their ability to face and handle a wide range of eventualities.	2.66	.658	5	High	2.82	.525	4	High
ICTs have provided a critical information base for travel agencies and hotels to use in their business sphere and the development of their approaches.	2.66	.600	4	High	2.97	.223	2	High
The use of ICT in travel agencies and hotels aids in recruiting qualified human resources in the field of information technology.	2.62	.608	7	High	2.63	.697	7	High
ICTs enable employees in travel agencies and hotels to work from remote locations.	2.81	.467	1	High	2.91	.401	3	High
Total Mean	2.71	High			2.83	High		

The Impact of ICTs Use on the Performance of Travel Agencies

Table (5) presents the means and standard deviations of the impact of ICTs use on the performance of travel agencies, where the means ranged between (2.81 – 2.62) compared with the total instrument mean for the domain (2.71). The statement "ICTs enable employees in travel agencies to work from remote locations." came out on the first rank (mean \pm SD 2.81 \pm 0.467). The statement "The use of ICT in travel agencies aids in the recruitment of qualified human resources in the field of information technology" came out on the last rank (mean \pm SD = 2.62 \pm 0.608).

The Impact of ICTs Use on the Performance of Hotels

Table (5) presents the means and standard deviations of the impact of ICTs use on the performance of hotels, where the means ranged between (2.98 – 2.63) compared with the total instrument mean for the domain (2.83). The statement "The use of ICTs in hotels considerably enhances and boosts service efficiency." came out on the first rank (mean \pm SD 2.98 \pm 0.221). The statement "The use of ICTs in hotels helps to get qualified human resources in the field of information technologies" came out on the last rank (mean \pm SD = 2.63 \pm 0.697).

Part five: Challenges of applying ICTs in travel agencies and hotels

Table 6: Challenges of applying ICTs in travel agencies and hotels

Variables	Travel agencies				Hotels			
	Mean	Standard Deviation	Rank		Mean	Standard Deviation	Rank	
			Attitude				Attitude	
In travel agencies and hotels, there is lack of ICT infrastructure.	2.41	.724	1	High	2.64	.722	2	High
Low employees' ability to use ICTs in travel agencies and hotels.	2.19	.811	6	moderate	2.54	.734	3	High
Employees' resistance to change in relation to the application of ICTs in travel agencies and hotels.	2.26	.833	5	moderate	2.53	.816	5	High
The high cost of implementing ICTs in travel agencies and hotels	2.35	.764	3	High	2.68	.695	1	High
Lack of awareness by the travel agencies and hotel management about the benefits of using ICTs	2.35	.762	2	High	2.35	.913	6	High
The inability of hotel and travel agencies management to secure and maintain databases.	2.30	.800	4	moderate	2.53	.776	4	High
Total Mean	2.31	High			2.55	High		

Challenges of applying ICTs in travel agencies

Table (6) presents the means and standard deviations of challenges of applying ICTs in travel agencies ranged between (2.41– 2.19) compared with the total instrument mean for the domain (2.31). The statement "In travel agencies, there is lack of ICTs infrastructure."

came out on the first rank (mean \pm SD = 2.41 \pm 0.724). The item "Low of employees' ability to use ICTs in travel agencies" came out on the last rank (mean \pm SD = 2.19 \pm .811).

Challenges of applying ICTs in hotels

Table (6) presents the means and standard deviations of the use of ICTs in hotels, where the means ranged between (2.68 – 2.35) compared with the total instrument mean for the domain (2.55). The statement "High costs

of applying ICTs in the hotel" came out on the first rank (mean \pm SD = 2.68 \pm 0.695). The item "The high cost of implementing ICTs in hotels" came out on the last rank (mean \pm SD = 2.35 \pm 0.913).

4.3. Pearson Correlation analysis in Travel agencies

Table (7) Correlation between the use of ICTs in Travel Agencies and the role of ICTs in the development of travel agencies' services

		the use of ICTs in travel agencies
the role of ICTs in the development of travel agencies' services	Pearson Correlation	.862**
	Sig. (2-tailed).	.000

**Correlation is significant at the 0.01 level (2-tailed).

As seen in table (7), there is a significant relationship between the use of ICTs in travel agencies and the role of ICTs in developing travel agencies' services ($r \leq .862$ P-Value \leq

0.0001), which indicates that as the use of ICTs in travel agencies increases, the role of ICTs in the development of travel agencies' services also increases.

Table (8) Correlation between the use of ICTs in travel agencies and the impact of ICTs use on the performance of travel agencies

		the use of ICTs in travel agencies
the impact of ICTs use on the performance of travel agencies	Pearson Correlation	.809**
	Sig. (2-tailed).	.000

**Correlation is significant at the 0.01 level (2-tailed).

As indicated in table (8), there is a significant relationship between the use of ICTs in travel agencies and the impact of ICTs use on the performance of travel agencies ($r \leq 0.809$ P-

value ≤ 0.000). According to this positive correlation, as travel agencies use of ICTs increases, so has the impact of ICTs on travel agencies performance.

4.4. Pearson Correlation analysis in Hotels

Table (9) Correlation between the use of ICTs in hotels and the role of ICTs in the development of hotels ' services

		the use of ICTs in hotels
the role of ICTs in the development of hotels services	Pearson Correlation	.784**
	Sig. (2-tailed).	.000

**Correlation is significant at the 0.01 level (2-tailed).

As shown in table (9), there is a significant relationship between the use of ICTs in hotels and the role of ICTs in developing hotels' services ($r \leq 0.784$; P-value ≤ 0.0001), which

indicates that the use of ICTs in hotels increases, the role of ICTs in the development of hotels' services also increases.

Table (10) Correlation between the use of ICTs in hotels and the impact of ICTs use on the performance of hotels

		the use of ICTs in hotels
the impact of ICTs use on the performance of hotels	Pearson Correlation	.832**
	Sig. (2-tailed).	.000

**Correlation is significant at the 0.01 level (2-tailed).

According to table (10), there is a significant relationship between the use of ICTs in hotels and the impact of ICTs use on the performance of hotels ($r \leq 0.832$, $P\text{-value} \leq 0.000$), which indicates that the use of ICTs in hotels increases, the impact of ICTs use on hotel performance also increases.

5. Summary and Conclusion

After completing a number of statistical analyses of the study instrument and using a carefully selected set of analyses in order to acquire accurate results that are commensurate with the importance of the study and the problem it aims to solve, the following findings were discovered: The findings of the field research are presented in Table 11.

Table 11: Results of the field study

Variables	Travel Agencies	Hotels
Use of ICTs in Travel Agencies and Hotels	<ul style="list-style-type: none"> Travel agencies are committed to adopting a philosophy based on the use of computer technologies by all employees in their work." ranked first with a mean and standard deviation (2.68 ± 0.539). The travel agencies use computer technologies and other websites to conduct research in order to measure and assess the performance level of their employees" ranked last reached a mean and the standard deviation (2.41 ± 0.724) 	<ul style="list-style-type: none"> The hotel management is concerned about information security by securing a network to protect the databases." ranked first with a mean and standard deviation (2.96 ± 0.191). The hotel management uses computer technologies and other websites to conduct research in order to measure and assess the performance level of their employees" ranked last reached a mean (2.26 ± 0.899).
The Role of ICTs in the Development of Travel Agencies and Hotels Services	<ul style="list-style-type: none"> The travel agencies are committed to using websites to get enough information about other competitors' services to boost their competitiveness," ranked first with a mean and standard deviation (2.58 ± 0.672). The travel agencies have agreed to participate in seminars and festivals that illustrate the importance of ICTs in increasing services, lowering costs, and making the process of supplying them easier" ranked last reached a mean and the standard deviation (2.30 ± 0.752). 	<ul style="list-style-type: none"> The hotels' management is interested in maintaining constant communication with consumers who have previously dealt with them through their websites to notify them of any new offers from their current offerings." They ranked first with a mean and standard deviation ($3.00, \pm 0.000$). The hotels' management is committed to using websites to get enough information about the services offered by other competitors in order to boost their competitiveness" ranked last reached a mean and the standard deviation (2.69 ± 0.691)
The Impact of ICTs Use on the Performance of Travel Agencies and Hotels	<ul style="list-style-type: none"> ICTs enable employees in travel agencies to work from remote locations" ranked first with a mean and standard deviation (2.81 ± 0.467). The use of ICTs in the travel agencies helps get qualified human resources in information technologies ranked last at the mean and the standard deviation (2.62 ± 0.608). 	<ul style="list-style-type: none"> The use of ICTs hotels considerably enhances and boosts service efficiency." ranked first with a mean and standard deviation ($2.98 \pm .221$). The use of ICTs in the hotel helps to get qualified human resources in information technologies" ranked last reached a mean and a standard deviation (2.63 ± 0.697).

Challenges of applying ICTs in travel agencies and hotels	<ul style="list-style-type: none"> – lack infrastructure for ICTs in travel agencies" ranked first with a mean and standard deviation (2.41 ± 0.724). – Low employees' ability to use ICTs in travel agencies" ranked last reached a mean and a standard deviation (2.19 ± 0.811). 	<ul style="list-style-type: none"> – High costs of applying ICTs in the hotel" ranked first with a mean and standard deviation (2.68 ± 0.695). – Lack of awareness of the hotel management about the benefits of using ICTs" ranked last reached a mean and a standard deviation (2.35 ± 0.913).
--	--	--

6. Recommendations

The results of the study suggest several recommendations to the management of travel agencies and hotels in Hurghada for using ICTs to remain competitive in the current business environment and to improve their performance:

1. Travel agencies and hotel management should be aware of the potential benefits of ICT applications and spend time and resources implementing new technology.
2. Travel agencies and hotel management should include ICTs in their strategy and improve their employees' awareness of ICT competence and trends.
3. Travel agencies and hotel management should regularly study customers' evaluations and comments made on various electronic platforms to better understand their customers' evaluations and comments. This would allow them to design better marketing and pricing strategies.
4. Travel agencies and hotel management should invest in teaching their employees and management about ICTs and their benefits.
5. As new technologies generate new competitive situations, travel agencies and hotel management should improve the effective management of technology assets and give ICTs a more active part in formulating business strategies.
6. Travel agencies and hotel management should hire or outsource skilled ICT consultants to offer guidance, training, and

evaluation of current systems and opportunities.

7. A culture of ICTs must be fostered in travel agencies and hotels by ensuring that all business processes are gradually reliant on technology and less reliant on manual processes, as well as by constantly exploring all of the latest technological options and their potential benefits to the organization.
8. To increase their performance, travel agencies and hotel management should use ICTs (devices and equipment, human resource skills, software, processes, networks, and databases).
9. Travel agencies and hotel management should invest in a way that adds to their profitability by providing people capabilities, efficient skills, proper infrastructure, and appropriate use of ICTs.

References

- Abir, T., & Khan, M. Y. H. (2022). Importance of ICT Advancement and Culture of Adaptation in the Tourism and Hospitality Industry for Developing Countries. In *ICT as Innovator Between Tourism and Culture* (pp. 30-41). IGI Global.
- Akdu, U. (2020). Smart Tourism: Issues, Challenges, and Opportunities. In *The Emerald Handbook of ICT in Tourism and Hospitality*. Emerald Publishing Limited.
- Akyeampong, O. A., & Nutsugbodo, R. Y. (2017). Adoption of Information and Communication Technologies by Hotels.
- Alsarayreh, M. N., & Salt, J. (2018). Technology and marketing tourism and hotels in Jordan. *International Journal of Humanities, Arts and Social Sciences*, 4(5), 213-220.
- Aramendia Muneta, M. E., & Ollo López, A. (2013). ICT Impact on tourism industry. *International Journal of Management Cases* 2013; 15 (2): 87-98.

- Awusiedu, R. O. A. (2019). Hotels' adoption and utilization of information and communication technology (ITC) in the Kumasi Metropolis, Ghana (Doctoral dissertation, University of Cape Coast).
- Benkendorff, K. & Nongmaithem, B. D., Mouatt, P., Eichinger, Y., Savins, D., (2018). Effect of cooking on nutrient composition and anticancer indoles of the marine whelk *Dicathais orbita*—Can it be another high-value seafood product? *Food Chemistry*, 266, 38-46.
- Berne, C., García-Gonzalez, M., Garcia-Uceda, M. E., & Mugica, J. M. (2015). The effect of ICT on relationship enhancement and performance in tourism channels. *Tourism Management*, 48, 188-198.
- Bethapudi, A. (2013). The role of ICT in tourism industry. *Journal of applied economics and business*, 1(4), 67-79.
- Bilgihan, A., Okumus, F., & Kwun, D. J. W. (2011). Information technology applications and competitive advantage in hotel companies. *Journal of Hospitality and Tourism Technology*.
- Cai, W., Richter, S., & McKenna, B. (2019). Progress on technology use in tourism. *Journal of Hospitality and Tourism Technology*.
- Calvaresi, D., Ibrahim, A., Calbimonte, J. P., Schegg, R., Fragniere, E., & Schumacher, M. (2021). The evolution of chatbots in tourism: a systematic literature review. *Information and Communication Technologies in Tourism 2021*, 3-16.
- Chang, M. C., Hau, Y. S., Lee, J. M., Park, J. (2019). Attitudes toward blockchain technology in managing medical information: Survey study. *Journal of Medical Internet Research*, 21(12).
- Chege, S. M., Wang, D., & Suntu, S. L. (2020). Impact of information technology innovation on firm performance in Kenya. *Information Technology for Development*, 26(2), 316-345.
- Chevers, D. A. (2015). Evaluating the impact of ICT usage on the performance of Jamaican hotels: A conceptual perspective. *Journal of Tourism and Hospitality Management*, 3(1-2), 22-31.
- Damjanovic, A. (2016). The Impact of ICT in Business in Tourism-Improving Efficiency, Productivity, and Business Performance. In *Sinteza 2016-International Scientific Conference on ICT and E-Business Related Research* (pp. 550-558). Singidunum University.
- Dewan, S., Shi, C., & Gurbaxani, V. (2007). Investigating the risk-return relationship of information technology investment: Firm-level empirical analysis. *Management science*, 53(12), 1829-1842.
- Ezzaouia, I., & Bulchand-Gidumal, J. (2020). Factors influencing the adoption of information technology in the hotel industry. An analysis in a developing country. *Tourism Management Perspectives*, 34, 100675.
- Fuza, Z. I. M., Ismail, H. N., & Isa, S. M. (2015, February). Importance of Information Communication Technologies (ICT) among tour operators in Malaysia. In *Interdisciplinary Behavior and Social Sciences: Proceedings of the 3rd International Congress on Interdisciplinary Behavior and Social Science 2014 (ICIBSoS 2014)*, 1-2 November 2014, Bali, Indonesia. (p. 255). CRC Press.
- Garbin Pranicevic, D., & Mandic, A. (2020). ICTs in the hospitality industry: An importance-performance analysis among small family-owned hotels. *Tourism: An international interdisciplinary journal*, 68(2), 221-234.
- Gonzalez, R., Gasco, J., & Llopis, J. (2019). ICTs in hotel management: a research review. *International Journal of Contemporary Hospitality Management*.
- Melian-Gonzalez, S., & Bulchand-Gidumal, J. (2016). A model that connects information technology and hotel performance. *Tourism management*, 53, 30-37.
- Gonzalez-Rivera, M. D., & Diaz-Pulido, B., Villalba, A. (2017). Obstacles Perceived by Physical Education Teachers to Integrating ICT. *Turkish Online Journal of Educational Technology-TOJET*, 16(1), 83-92.
- Gossling, S. (2020). Technology, ICT, and tourism: From big data to the big picture. *Journal of Sustainable Tourism*, 29(5), 849-858.
- Gossling, S. (2021). Tourism, technology and ICT: A critical review of affordances and concessions. *Journal of Sustainable Tourism*, 29(5), 733-750.
- Gretzel, U., & Stankov, U. (2021). ICTs and well-being: challenges and opportunities for tourism. *Information Technology & Tourism*, 23(1), 1-4.
- Gupta, H., Dutta, U. P., & Sengupta, P. P. (2019). ICT and health outcome nexus in 30 selected Asian countries: Fresh evidence from panel data analysis. *Technology in Society*, 59, 101184.
- Hashim, J. (2015). Information communication technology (ICT) adoption among SME owners in Malaysia. *International Journal of Business and information*, 2(2).
- Hofman, A., Aravena, C., & Aliaga, V. (2016). Information and communication technologies and their impact in the economic growth of Latin America, 1990–2013. *Telecommunications Policy*, 40(5), 485-501.
- Hua, N. (2020). Does information technology (IT) capabilities affect hotel competitiveness? *Journal of Hospitality and Tourism Technology*.
- Hua, N., Morosan, C., & DE Franco, A. (2015). The other side of technology adoption: examining the relationships between e-commerce expenses

- and hotel performance. *International Journal of Hospitality Management*, 45, 109-120.
- Hwang, G. J., Xie, H., Chu, H. C., & Wang, C. C. (2019). Trends and development in technology-enhanced adaptive/personalized learning: A systematic review of journal publications from 2007 to 2017. *Computers & Education*, 140, 103599.
 - Ilkan, M., Beheshti, M., Rahimi, S., & Atalar, E. (2017). The role of information and communication technology (ICT) in tourism education: A case study of higher education students.
 - Jadhav, V. S., & Mundhe, S. D. (2011). Information technology in Tourism. *International Journal of Computer Science and Information Technologies*, 2(6), 2822-2825.
 - Jameel, A. S., Abdul-Karem, M., & Mahmood, N. (2017). A Review of the Impact of ICT on Business Firms. *International Journal of Latest Engineering and Management Research*, 2(01), 15-19.
 - Januszewska, M., Jaremen, D., & Nawrocka, E. (2015). The effects of the use of ICT by tourism enterprises. *Zeszyty Naukowe Uniwersytetu Szczecińskiego. Service Management*, 16, 65-73.
 - Jaremen, D. E. (2016). Advantages from ICT usage in Hotel Industry. *Czech Journal of Social Sciences Business and Economics*, 5(3), 6-18.
 - Katsoni, V. (2015). ICT applications in the hotel industry through an e-CRM systems theory approach. *Academica turistica (Spletna izd.)*, 8(1), 15-23.
 - Kazakov, S., Ruiz-Alba, J. L., & Muñoz, M. M. (2020). The impact of information and communication technology and internal market orientation blending on organizational performance in small and medium enterprises. *European Journal of Management and Business Economics*.
 - Khan, Y. H., & Hossain, A. (2018). The effect of ICT application on the tourism and hospitality industries in London. *Socioeconomic Challenges*, (2, Iss. 4), 60-68.
 - Khatri-Chhetri, A., Gangopadhyay, P. K., Khatri-Chhetri, A., & Shirsath, P. B., & Aggarwal, P. K. (2019). Spatial targeting of ICT-based weather and Agro-advisory services for climate risk management in agriculture. *Climatic change*, 154(1), 241-256.
 - Kim, M., & Qu, H. (2014). Travelers' behavioral intention toward hotel self-service kiosks usage. *International Journal of Contemporary Hospitality Management*, 26(2), 225-245.
 - Kourtesopoulou, A., Theodorou, S. D., Kriemadis, A., & Papaioannou, A. (2019). The impact of online travel agencies web service quality on customer satisfaction and purchase intentions. In *Smart Tourism as a Driver for Culture and Sustainability* (pp. 343-356). Springer, Cham.
 - Kumar, A., Singh, R. K., & Modgil, S. (2020). Exploring the relationship between ICT, SCM practices and organizational performance in agri-food supply chain. *Benchmarking: An International Journal*.
 - Lad, K., & Waghmare, N. (2020). The Impact of Information & Communication Technology (ICT) in Smart Hospitality Ushering into Digital Era.
 - Law, R., Buhalis, D., & Cobanoglu, C. (2014). Progress on information and communication technologies in hospitality and tourism. *International Journal of Contemporary Hospitality Management*.
 - Law, R., Leung, D., & Chan, I. C. C. (2019). Progression and development of information and communication technology research in hospitality and tourism: a state-of-the-art review. *International Journal of Contemporary Hospitality Management*.
 - Law, R., Leung, D., Au, N., & Lee, H. A. (2013). Progress and development of information technology in the hospitality industry: Evidence from Cornell Hospitality Quarterly. *Cornell Hospitality Quarterly*, 54(1), 10-24.
 - Law, R., Leung, D., Lo, A., & Fong, L. H. N. (2015). Applying the Technology-Organization-Environment framework to explore ICT initial and continued adoption: An exploratory study of an independent hotel in Hong Kong. *Tourism Recreation Research*, 40(3), 391-406.
 - Liu, C., & Hung, K. (2019). Understanding self-service technology in hotels in China: technology affordances and constraints. In *Information and Communication Technologies in Tourism 2019* (pp. 225-236). Springer, Cham.
 - Marusic, Z., Aleksic, A., Pejic Bach, M., Omazic, M. A., & Zoroja, J. (2019). Determinants of innovation in hotel and travel agencies service industry: impact of information and communication technologies and enterprise readiness. *Interdisciplinary Description of Complex Systems: INDECS*, 17(1-B), 209-225.
 - Marzouk, A. M. (2021). Egypt's image as a tourist destination: an exploratory analysis of DMO's social media platforms. *Leisure/Loisir*, 1-37.
 - Masaki, E. A., John, W. F., & Abel, C. (2021). Impact of ICT tools and apps on tourism destination marketing: A case of RDB and Marriot Hotels, Kigali, Rwanda. *International Journal of Social Science and Economic Research*, 6(4), 1232-1249.
 - Mihajlovic, I. (2012). The impact of information and communication technology (ICT) as a key factor of tourism development on the role of Croatian travel agencies. *International Journal of Business and Social Science*, 3(24).
 - Mithas, S., & Rust, R. T. (2016). How Information Technology Strategy and Investments Influence Firm Performance. *Mis Quarterly*, 40(1), 223-246.
 - Mithas, S., Tafti, A., Bardhan, I., & Goh, J. M. (2012). Information technology and firm profitability: mechanisms and empirical evidence. *Mis Quarterly*, 205-224.

- Mogollon, R. Fernández-Portillo, A., & Almodóvar-González, M. (2020). Impact of ICT development on economic growth. A study of OECD European union countries. *Technology in Society*, 63, 101420.
- Morais do Vale, A. P., Patrão, R. L., Camargo de Souza, L., Dias Canedo, E., Machado Gravina, R., Eloy dos Reis, V., & T de Sousa, R. (2020). Information and Communication Technology (ICT) Governance Processes: A Case Study. *Information*, 11(10), 462.
- Mupfiga, P. S. (2015). Adoption of ICT in the tourism and hospitality sector in Zimbabwe. *The International Journal of Engineering and Science*, 4(12), 72-78.
- Navio-Marco, J., Ruiz-Gomez, L. M., & Sevilla-Sevilla, C. (2018). Progress in information technology and tourism management: 30 years on and 20 years after the internet-Revisiting Buhalis & Law's landmark study about tourism. *Tourism management*, 69, 460-470.
- O'Neill, J. W., & Carlback, M. (2011). Do brands matter? A comparison of branded and independent hotels' performance during a full economic cycle. *International Journal of Hospitality Management*, 30(3), 515-521.
- Pesonen, J., & Neidhardt, J. (2019, January). Information and Communication Technologies in Tourism 2019. In *Proceedings of the International Conference*. Springer (Vol. 10, pp. 978-3).
- Phillips, M., Koehler, M., Rosenberg, J., & Zunica, B. (2017, March). Unpacking TPACK: reconsidering knowledge and context in teacher practice. In *Society for information technology & teacher education international conference* (pp. 2422-2429). Association for the Advancement of Computing in Education (AACE).
- Piccoli, G. (2008). A framework for evaluating the business value of customer data in hospitality, *Journal of Hospitality & Leisure Marketing*, Vol. 17 Nos 1/2, pp. 4-29.
- Piccoli, G. and Pigni, F., 2016. *Information systems for managers with cases*. 3.1st ed. Burlington, VT: Prospect Press.
- Pillay, P. (2016). Barriers to information and communication technology (ICT) adoption and use amongst SMEs: a study of the South African manufacturing sector (Doctoral dissertation, University of the Witwatersrand, Faculty of Commerce, Law and Management, Wits Business School).
- Rahman, M. K., Hassan, A., & Jalil, M. (2022). Tourism in Bangladesh: The Application of Technologies. In *Technology Application in Tourism in Asia* (pp. 383-394). Springer, Singapore.
- Ray, R., Sazu Sardar, D., Hossain, M. E., & Kamruzzaman, M. (2021). ICT Applications in Tourism and Hospitality Industry of Bangladesh: A Research Review.
- Riquez, A., & Moore, S. (2013). Exploring feelings about technology integration in higher education: Individuation and congruence. *Journal of Organizational Change Management*.
- Romero, I., & Tejada, P. (2020). Tourism intermediaries and innovation in the hotel industry. *Current Issues in Tourism*, 23(5), 641-653.
- Sardar, T., Jianqiu, Z., Bilal, M., & Syed, N. (2021). Impact of ICT on entrepreneurial self-efficacy in emerging economy: Sustaining lockdown during COVID-19 pandemic. *Human Systems Management*, 40(2), 299-314.
- Sava, C., & Mateia, A. N. (2016). An analysis of the impact of new communication technologies on tourism. *Quaestus*, (8), 345.
- Shelomovska, O., Sorokina, L., Romaniukha, M., Bohomaz, K., & Nakaznyi, M. (2016). ICT-Competence of University Teachers in Professional Development and Scientific Activity.
- Shrestha, D., & Jeong, S. R. (2021). An ICT framework for tourism industry of Nepal: prospect and challenges. Available at SSRN 3884767.
- Singh, L., & Dhankhar, D. (2020). ICT-based Marketing and Profitability in Tourism and Hospitality Organizations in Indian Scenario. In the *Emerald handbook of ICT in tourism and hospitality*. Emerald Publishing Limited.
- Sintala, S. K. (2019). *Information and Communication Technology in The Hotel Industry*.
- Sirirak, S., Islam, N., & Khang, D. B. (2011). Does ICT adoption enhance hotel performance? *Journal of Hospitality and Tourism Technology*.
- Stankov, U., Filimonau, V., & Slivar, I. (2019). Calm ICT design in hotels: a critical review of applications and implications. *International Journal of Hospitality Management*, 82, 298-307.
- Styven, M. E., & Wallstrom, A. (2019). Benefits and barriers for the use of digital channels among small tourism companies. *Scandinavian Journal of Hospitality and Tourism*, 19(1), 27-46.
- Sukthankar, S. V., Gaonkar, S., Gaonkar, S., & Shirodkar, D. (2020). Impact of E-Commerce on the Travel Agencies and Tourist Visiting Goa: An Analytical Study. *Journal of Interdisciplinary Cycle Research*, 12(6), 928-940.
- Talwar, S., Dhir, A., Kaur, P., & Mantymaki, M. (2020). Barriers toward purchasing from online travel agencies. *International Journal of Hospitality Management*, 89.
- Tichaawa, T. M., Mhlanga, O., & Sicwebu, S. (2017). The impact of information communication technologies (ICTs) on tourism businesses in East London, South Africa. *Acta Universitatis Danubius. Economica*, 13(3).
- Trang, T. T. H., & Thao, N. T. P. (2019). The impact of information technology application on the hotel performance—A conceptual perspective. *Tap chi Khoa học*, 16(5), 80.

- Unal, A., & Ozkan, S. (2016). The Use of Information and Communication Technology in Travel Agencies: A Research on Agencies That are Members of IATA in Istanbul. *Yalova Sosyal Bilimler Dergisi*.
- Werthner, H., Alzua-Sorzabal, A., Cantoni, L., Dickinger, A., Gretzel, U., Jannach, D. & Zanker, M. (2015). Future research issues in IT and tourism. *Information Technology & Tourism*, 15(1), 1-15.
- Yoo, J., Kim, E., Euh, Y., Lee, J. G., Jo, Y., & Lee, D. (2021). Which business strategy improves ICT startup companies' technical efficiency? *Technology Analysis & Strategic Management*, 33(7), 843-856.