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The Impact of Smart Services on the Efficiency and Effectiveness of Employees Performance in Hotels

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Keywords

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Abstract

Smart technology has become very important in the hospitality industry. The interest in the role of digitization in the management of hotels is a turning point for the importance of smart technology applications. Moreover, smart services improve employees' performance by providing insight into processes and tasks or by providing new flexibility. The current study aims to explore the impact of smart services on the effectiveness and efficiency of employees' performance in hotels. This study used the descriptive approach with a questionnaire for a cluster sample of hotel employees in three, four, and five-star hotels in the cities of Hurghada, Elgouna, and Safaga during the period (November 2021 to February 2022). A total of 380 questionnaire forms were distributed to hotel employees. The results reveal that actual practices of smart services affect the effectiveness of employees' performance by 81.1%. Moreover, it affects the efficiency of employees' performance by 76.5%. According to the current study, hotel management should hire trained and qualified employees, invest in comprehensive infrastructure improvements, and keep up to date on technological advances in the field of artificial intelligence.

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1. Introduction

Smart technology has become very important in the hospitality industry, especially with the advancement of information technology, communication technology, and artificial intelligence techniques in many industries (Jastoria & Gangotia, 2018). Furthermore, smart technology enhances the hotels' competitiveness by giving them a competitive advantage over their competitors through service automation and the use of information and communication technologies (Barten, 2016; Gajdosik, 2018). According to Stankov et al. (2019), the hospitality industry is one of the economic sectors that is progressively benefiting from current information and communication technologies. Therefore, smart service plays a critical role and regarded as the most important aspect in the effective operation of smart hotels (Lukanova & Ilieva, 2019). As knowledge capital continues to grow, smart businesses start to appear. These businesses use smart services to take full advantage of their employees' creativity and boost their performance (Neidhardt & Worndl, 2020). Gonzalez et al. (2020) argued that smart services provide excellent service to satisfy both customers and employees and enhance operational procedures and boost performance effectiveness. Smart services can improve employees' performance by giving them knowledge of procedures and duties, helping them in their day-to-day activities and offering greater flexibility while needing new knowledge and abilities (Reil & Leye, 2021). Based on the previous, the purpose of this study is to explore the impact of smart services on the efficiency and the Effectiveness of employee performance in hotels.

2. Literature Review

2.1. Concept of Smart Services

Service is any action or performance that one party can give to another, which is in fact intangible and does not lead to the ownership of anything (Tahiri et al., 2021). Shen et al. (2020) agreed with Koo et al. (2015) that service has been conceived as the way in which the organization desires to retain its customers, employees, shareholders, and lenders by means of the services it provides. Moreover, the interest in the role of digitization in the management of hotels, restaurants, and airports is a turning point for the importance and impact of smart technology applications and artificial intelligence in achieving competitive advantage and enhancing hospitality services. Additionally, a smart service is a digital service that react to collected and analyzed data based on networked, intelligent technical systems and platforms. In contrast to normal services, smart services are products or components with embedded systems that can collect, communicate, and network data (Carsten et al., 2018).

Smart technology in the tourism and hospitality industry is used to improve vacation and accommodation experiences for tourists and to provide an innovative tourism service that leads to customer satisfaction on all trips (Gajdosik, 2018; Jastoria & Gangotia, 2018). Beverungen et al. (2019) defined smart services as a phenomenon strongly rooted in technology based on cloud computing, sensors, a global positioning system (GPS), and widespread use of artificial intelligence, virtual and augmented reality, with the full adoption of social media and mobile technologies to drive the emergence of intelligence in hotels. Abdel-Karim (2021) added that a smart service is a group of individuals, data, procedures, hardware components and software that work together in order to reach the goals of the organization. Intelligent systems within smart services are defined as those physical parts represented by control switches and communication channels such as wires, means of entry, and others that play an important role in the economics of the building and how to deal with it (Wang &

Wong, 2013). Wilamowski & Irwin, (2018) added that these systems can monitor and control most of the building's services depending on the level of integration and development in the building. These systems contribute to energy conservation through various effective programs to obtain optimal performance of the systems and help in the process of operation and maintenance (Gajdosik, 2018; Jastoria & Gangotia, 2018).

2.2. Smart Services Characteristics

Information technology refers to all types of technology used in the operation, transmission, and storage of information in electronic form, including automated accounts technologies, means of communication, interconnection networks, fax machines and other equipment that is heavily used in communications, as the optimal application of knowledge in various industrial and economic sectors (Marquardt 2017, and Kabadayi et al., 2019). Jastoria & Gangotia (2018) mentioned that a lot of products and services have names starting with smart, for example, smartphones, smart TVs, smart homes, smart energy, and so on. Steimel (2016) stated that there are five characteristics used to define smart services as following:

- Connection between the physical and the digital world.
- Upgrade of value creation and economic efficiency.
- Extension of products and services to a digital level.
- Transformation of the product into a part of the service.
- Change from product-centered to customer-centered business models.

2.3. Significance of Smart Services

The availability and use of technology in various fields of tourism and hospitality, such as planning, promoting, marketing, booking, contracting, and financial settlement, will be required to improve the quality of hospitality services. (Chestler, 2016). Ivanov et al., (2018) agreed with Chen & Hu, (2013) that smart service helps to develop the performance of employees for their activities at a lower cost, improve the speed and accuracy of the information, improve communication, and remove barriers such as distance and high investment. On the one hand, smart services reduce operation costs, improve employee experience and talent attraction, boost performance and productivity, workplace safety monitoring, improve communication, and remove barriers (Alhashmi et al., 2020; Al Suwaidi et al., 2020). On the other hand, the smart service faces some barriers such as security risks, interoperability issues, and privacy concerns (Alshurideh et al., 2020).

2.4. Smart Services Forms

With the advancement of information and communication technology, efforts to actively establish a smart work environment in various domestic industries, such as the hospitality industry, have increased, and these systems contribute to energy conservation through various effective programs to achieve optimal system performance and aid in the process of operation and maintenance (Leander et al., 2021; Abdel-Karim, 2021).

1. Access Control and Control Systems

Access control and control systems such as fingerprint systems, eye retardation, and face pattern are used to determine entry to the building and internal spaces (Abdelmoaty & Soliman, 2020). It also provides flexibility and ease of management of the spaces via the access control points (Leander et al., 2021). Identity verification systems, such as passwords or magnetic cards, are used to determine whether a person has access to a location, and it also allows for video recording (Abdelmoaty &

Soliman, 2020). This system is distinguished by its ability to retrieve specific moments and search for videos based on date and time (Lunkes et al., 2019; Xu et al., 2021). Huang et al. (2021) added that thermal imaging cameras, which detect and measure temperature differences, allow monitoring of what can be seen to ensure safety.

2. Direct Digital Control Systems

Direct digital control systems are building service control systems that use controllers and microprocessors to analyze operations that receive and analyze information based on the appropriate reaction and then send the response to the control units, which are also linked to programs that analyze data, create graphs, and track control operations users (Lunkes et al., 2019; Huang et al., 2021).

3. In-Room Control Systems

Heating, ventilation, and air conditioning (HVAC) systems are defined as systems that consist of a collection of control loops that work together to perform the tasks required to maintain the required environmental conditions as precisely as possible, help approximate temperature and humidity, and improve indoor air quality in the building (Buhalis & Moldavska 2021). Many types of smart services technologies are used in hotels such as: wearable technology is a technology that allows the user to link it to a cell phone or computer using android devices, which allows them to click on the notification on the watch by issuing smartwatches to its employees, combined with task management software to help speed service by responding to its messages and improving communication with the guest and its efficiency (Abdelmoaty & Soliman, 2020; Mejia et al., 2021). Guests sleep, so a watch or bracelet with vibration (used in Western hotels) can wake them up; additionally, the wristband can pass hotel room keys (Stankov et al., 2019).

4. Smart Applications

The phone includes web access, multimedia, e-mail, applications, keyless entry, and a vertical doorkeeper (Prentice et al., 2020). In hotels, guests use smartphones to communicate with hotel staff by sending automated messages to request room service, resolve complaints quickly, and save time (Lauraitis et al., 2019). According to Amer and Alqhtani (2019), the internet of things broadens the scope of internet connection with devices and devices in hotel institutions, GPS, Bluetooth, and smart room accommodation. Smart rooms in hotels are completely customized to guest preferences, such as those provided by Hilton and Marriott, which have rooms that sync loyal members' and profiles' preferred room experiences; room temperature; lighting; bathroom; accessories; broadcasts; media preferences; hotel security; operation; management; and room service (Infante-Moro et al., 2021).

According to Prentice et al. (2020), artificial intelligence refers to machine computers performing seemingly intelligent behaviors, such as Chatbots, which help customers online and improve the travel experience by guiding tourists from booking to travel advice. there are three kinds of travel chat bots: customer service bots, Facebook Chatbots, and AI-powered travel bots (Pillai and Sivathanu, 2020). Guests can access information at any time and from any device. They can use voice-activated chat bots to open curtains, set alarms, and order meals without having to speak with a live person (Prentice et al., 2020). In hotels, robots perform professional services such as food preparation, room cleaning, self-check-in kiosks, robot waiters, and automated hotel information agents; deliver orders to guest rooms; greet guests; and speak in multiple languages to assist guests in the front office (Durmaz et al., 2018). On the

one hand, virtual reality is a computer technology that uses images and sounds to make users feel as if they are physically present in a virtual world (Lovreglio and Kinatader, 2020). On the other hand, augmented reality means improving the real-world environment by overlaying information on a live image using smartphones, tablets, or headphones. According to Israel et al. (2019), using 360 video technologies in hotels to show guests a virtual recreation experience helps hotels market all facilities, services, and rooms.

2.5. Concept Employee Performance

Due to the concept's importance at the individual and organizational levels, as well as the overlap of factors that affect performance and its diversity, and given its association with efficiency and effectiveness in organizations in achieving their goals, performance has received a great deal of attention and research in administrative studies in general and human resources in particular (Markos & Sridevi, 2010). Korschun et al. (2014) defined performance as a continuous process of improving output quality through the efficiency and effectiveness of input use, with an emphasis on working as part of a collective team to achieve organizational effectiveness.

Performance is a set of behavioral results for an employee that contributes to achieving organizational goals, considering the performance of specific tasks and using available resources (Goonetilleke et al., 2018; Sarwar & Muhammad 2020). According to Maharani et al. (2013), performance is also explained as the quantity and quality of work results obtained through the worker's fulfilment of his/her duties and responsibilities, as well as the presence of three basic components of performance:

- Quantity: meaning the quantity to be completed.
- Quality: It means the quality of the outputs.
- Time period: meaning a commitment to the pre-determined time.

2.6. Dimensions of Employees Performance

Performance is the level of efficiency and effectiveness with which a person, group, or tourist destination meets the predetermined objectives (Manzoor et al., 2011). This definition of performance states that it refers to the accomplishment of a task, endeavor, or activity by an individual, a group, or an organization in order to reach a particular objective, where it is ultimately considered to have been successful and effective (Baard et al., 2014; Aldawi, 2019). Additionally, employee performance has a special place in every business and is seen as the key to attaining the objectives of the latter (Maley et al., 2020). As a result, in order to maintain the performance in a manner that leads to the achievement of the intended goals, performance must be examined, monitored, and assessed (Manzoor et al., 2011).

Dalal et al. (2012) declared that performance is dynamic and multidimensional, and effective adaptive performance necessitates employees' ability to deal with volatile work circumstances such as technological transformations, changes in one's core job assignment, organizational restructuring, and so on. On the one hand, the scope of employees' performance is a major domain of human resource effectiveness (Pradhan & Jena, 2017). On the other hand, the evolution of various new occupations as a result of technological innovation necessitates employees engaging in new learning and becoming adaptable to changes in an efficient manner (Baard et al., 2014). The current study will rely on two major performance dimensions:

• **Efficiency**

According to Muhammad (2014), efficiency is defined as the effective use of available resources or the ability to use inputs and the employee's ability to achieve the greatest number of objectives required while using the fewest possible resources; in other words, doing business correctly.

• **Effectiveness**

According to Ahmad & Shahzad (2011), effectiveness is defined as the ability to achieve the expected activity and achieve the expected results.

2.7. Impact of Smart Services on the Employee Performance

Many organizations use smart services applications in various ways to improve employee performance (Chen et al., 2015). New technologies have an impact on job design and can be derived from job design (Paukstadt, 2019). According to Abdel-Karim et al. (2021), hotel employees use many smart services in various departments within the hotel, particularly in the rooms sector, to carry out various tasks and facilitate communication with one another. Smart services can increase an employee's variety of tasks because sensors and actuators deliver new data that can be used to create new tasks that can be standard, routine tasks or tasks that require complex information processing (Waschull et al., 2020). Therefore, using smart services by employees allows them to perform tasks more efficiently (Paukstadt, 2019).

According to Abdel-Karim et al. (2021), there is a significant relationship between the use of smart services applications and the efficiency of employee performance. Furthermore, interactions between humans and intelligent things provided by smart services have the potential to improve job performance (Cedeno et al., 2018). These interactions with smart objects may provide employees with near-instant feedback on their performance, which improves employee performance effectiveness (Dreyer, 2018). Smart services are also may have a negative impact on employees because they can lead to fewer contacts among employees, resulting in a loss of social relationships (Cedeno et al., 2018 & Waschull et al. 2020).

3. Methodology

The study aims to explore the impact of smart services on the efficiency and effectiveness of employees' performance in hotels (applying to the room sector). Specifically, the objectives of the study are:

1. Identifying types of smart technology applications used in hotels.
2. Clarifying the relationship between the smart services and the efficiency of the employee performance in the room sector in Egyptian hotels.
3. Explaining the relationship between the smart services and the effectiveness of the employees' performance in the room sector in Egyptian hotels.
4. Providing recommendations that contribute to developing the performance of employees in the hotel sector considering digital transformation.

3.1. Study Hypotheses

H₁: There is a statistically significant relationship between actual practices of smart services and the efficiency of employees' performance.

H₂: There is a statistically significant relationship between actual practices of smart services and the effectiveness of employees' performance.

H₃: There is a statistically significant impact of actual practices of smart services on the efficiency of employees' performance.

H₄: There is a statistically significant impact of actual practices of smart services on the effectiveness of employees' performance.

3.2. Population and Sample

The study depended on the cluster random sample; the Stephen K. Thompson equation (Thompson, 2012) was applied in the study to calculate the sample size (n) as follows:

$$n = \frac{N \times P(1-P)}{[(N-1) \times (d^2 \div z^2)] + P(1-P)}$$

Where, **N**: the population size (36344), **n**: the sample size (380), and **Z**: Confidence level at 95% (1.96), **P**: Probability (50 %). According to the number of employees in five, four and three- star hotels in Hurghada, Elgouna, and Safaga is 36344 employees (Egyptian tourism Association, 2020). So, the total number of populations is 36344 hotel employees. By applying the data of the study population in the previous formula, the optimal sample size of the study was calculated (380 participants).

3.3. Developing Questionnaire Form

The questionnaire includes three major sections: Section one is demographic data with (5) questions. Section two includes one question with multiple responses about the smart services applications. Section three includes three questions with a five-dimensional Likert scale about the applied smart services applications with (4) statements, efficiency of employees' performance with (6) statements and effectiveness of employees' performance with (7) statements prepared by the researchers according to the literature review.

3.4. Data Collection

The descriptive approach was used for a cluster sample of hotel employees in the room sector (380 participants) in three, four, and five-star hotels in Hurghada, Elgouna and Safaga during the study period (November 2021 to February 2022). Questionnaire was distributed in hard forms handed to (267) employees in hotel room sector. Out of this number, there are (263) forms that are valid to be analyzed (representing 98.5 % response rate). The second method questionnaire was distributed in online forums on Google Drive (<https://forms.gle/L6HeqWb1tRLFo6 Xp6>), there are (113) online forums handed to the employees in hotel room sector, out of this number, there are 100 forms that are valid to be analyzed (representing 88.4 % response rate) as shown in table (1):

Table (1): Study population and sample

Questionnaire	No. of Forms	No. of the Valid Forms	No. of the Invalid Forms	Response Rate
Hard Form	267	263	4	98.5 %
Online form	113	100	13	88.4 %
Total	380	363	17	95.5 %

Source: prepared by the researchers.

3.5. Data Analysis

Data analysis was performed using the Statistical Package for the Social Sciences (SPSS v. 22). The statistical analysis was carried out in three stages: (1) the descriptive analyses were performed to compute the frequencies, mean, standard deviation, rank and attitude. (2) correlation analysis was used to test the relationship between independent and dependent variables. (3) linear regression test has been used to estimate the significance impact of the independent variable (actual practices of

smart services) on the dependent variable (efficiency and effectiveness of employees' performance).

3.6. Study Data Normality

The Kolmogrov-Smirnov test was used to determine the normality of the distribution, which is a prerequisite for many statistical tests (Ghasemi and Zahediasl, 2012). The data distribution for both items was normal. As a result, parametric tests were used to evaluate the collected data in order to validate the study hypothesis (Ghasemi and Zehedias, 2012).

3.7. Validity and Reliability

Cronbach's alpha coefficient was tested for questionnaire statements' reliability, and it exceeded 0.7 for all variables, as shown in table (3); this means that all items are reliable, referring to suitable measurement reliability. Hair & Black (2009) stated that Cronbach's level of more than 0.7 is suitable for reliability.

Table (2): Validity and Reliability

Variables	N	Cronbach's Alpha Value	Validity Coefficient *
Smart Services Application	4	0.904	0.950
Employee Efficiency	6	0.905	0.951
Employee Effectiveness	7	0.925	0.961
Total	17	0.911	0.954

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

4. Results and Discussion

Part One: The Sample Demographic Data

The next table (3) shows the descriptive analysis of the demographic characteristics of the study sample (gender, age group, department, educational level, and years of experience).

Table (3): The Sample Demographic Data

Variable	Frequency	Percentage (%)
Gender		
Male	246	67.8
Female	117	32.2
Total	363	100
Age Group		
Between 21 :30 years old	258	71.1
Between 31 :40 years old	93	25.6
Between 41 :50 years old	9	2.5
More than 50 years old	3	0.8
Total	363	100
Education level		
Pre-university education	15	4.1
Technical education	9	2.5
University education	291	80.2
Master	39	10.7
PhD	9	2.5
Total	363	100
Department		

Front office department	261	71.9
Housekeeping department	102	28.1
Total	363	100
Years of Experience		
From 1:2 years	108	29.8
From 3:5 years	144	39.7
From 6:10 years	81	22.3
From 11:15 years	21	5.8
More Than 15 years	9	2.5
Total	363	100

As declared in table 3, the females are (67.8%), whilst only (32.2%) are males. The age category between 21:30 and 40 years old represents the highest percent of the tourist sample with (71.1%), and between 31:40 and 40 years old comes in second place with (25.6%). In terms of educational level, the majority (80.2%) has university education, whilst 10.7% have a PhD degree and (4.1%) of the rest of the respondents have pre-university educations. In terms of the department, (71.9%) worked in the front office department; (28.1%) worked in the housekeeping department. Also, the employees' sample was asked the years of experience; the highest percent came from 3–5 years with (39.7%), and from 1–2 years old came in second place with (29.8%).

Part Two: Smart Services Applications

The next table the employees' sample was asked if they use smart services applications in their work.

Table (4): Smart Services Applications used by the Employees

Category		Responses	
		No.	Percent
Smart Services Applications	Access Control and Control Systems	183	28.1%
	Direct Digital Control Systems	138	21.2%
	In-Room Control Systems	102	15.7%
	Smart Applications	228	35 %
Total		651	100 %

According to table (4), the most popular smart service applications used by the employees in hotels were "Smart Applications" (35.0%) and "Access Control and Control Systems" (28.1%). Furthermore, using "direct digital control" was 21.2%. Finally, the usage of "In-Room Control Systems" was 15.7%. This is consistent with Abdel-Karim et al., (2021) that hotel employees use many smart services in different departments within the hotel, especially in the rooms sector, in order to carry out various tasks and facilitate communication with each other.

Part Three: Descriptive Analysis

This part consisted of three elements as follows:

1. Descriptive Statistics for the usage of Smart Services

The aim of this variable is to assess the smart services application used by hotel employees.

Table (5): Assessment the Actual Practices of Smart Services Applications for Hotel Room Employees

Statements	M	SD	Rank	Attitude
1. Using smart technology in performing tasks of front office department (electronic reservation, electronic bill collection, determining the number of rooms required, completing check-in and check-out procedures).	3.29	1.162	4	Agree
2. Using smart technology in performing tasks of housekeeping department (preparing daily room status reports, preparing room inspection review reports, preparing room occupancy statistics and reservations).	3.79	0.961	3	Agree
3. Using smart technology to communicate with the maintenance department (reporting urgent repairs and maintenance work).	3.90	0.990	2	Agree
4. Using smart technology to communicate with guests (answering inquiries and reporting additional guest requests for the room).	4.00	0.937	1	Agree
Overall mean	3.74	0.834		Agree

M = Mean SD = Standard Deviation

Source: prepared by the researchers

As shown in table 5, the most effective variables were "Using smart technology to communicate with guests (answering inquiries and reporting additional guest requests for the room)". (M = 4.00, SD = 0.937), "Using smart technology to communicate with the maintenance department (reporting urgent repairs and maintenance work)". (M = 3.90, SD = 0.990), on the other hand, "Using smart technology in performing tasks of the housekeeping department (preparing daily room status reports, preparing room inspection review reports, preparing room occupancy statistics and reservations)". (M = 3.79, SD = 0.961). Additionally, the least effective variables were "Using smart technology in performing tasks of the front office department (electronic reservation, electronic bill collection, determining the number of rooms required, completing check-in and check-out procedures)". (M = 3.29, SD = 1.162). The results agreed with Abdel-Karim et al., (2021) that hotel employees use many smart services in different departments within the hotel, especially in the rooms sector, in order to carry out various tasks and facilitate communication with each other.

2. Descriptive Statistics for the Efficiency of Employee Performance

The aim of this variable is to assess the impact of smart services on employee performance efficiency.

Table (6): Assessment the Efficiency of Employee Performance

Statements	M	SD	Rank	Attitude
1- Using smart services make your work performance quickly.	3.97	1.077	1	Agree
2- Using Smart services affect the flexibility of your work performance positively.	3.93	1.067	2	Agree
3- Using smart services affects positively	3.93	0.944	3	Agree

the working conditions surrounding.				
4- Using smart services affects your focus in performing the tasks required positively.	3.59	1.212	6	Agree
5- Using smart services positively affects your safety while performing tasks.	3.66	1.066	5	Agree
6- Using smart services requires a lot of training for you to do the work.	3.83	1.000	4	Agree
Overall mean	3.81	0.875		Agree

M = Mean SD = Standard Deviation

Source: prepared by the researchers

As shown in table 6, the most effective variables were, “Using smart services make your work performance quickly.” (M=3.97, SD=1.077), “- Using Smart services affect the flexibility of your work performance positively.” (M= 3.93, SD= 1.067). On the other hand, “Using smart services affects positively the working conditions surrounding.” (M=3.93, SD=0.944). Additionally, “Using smart services requires a lot of training for you to do the work positively.” (M=3.83, SD=1.000). Furthermore, the least effective variables were “Using smart services affects positively your safety while performing tasks.” (M=3.66, SD=1.066). On the other hand, “Using smart services affects your focus in performing the tasks required of you.” (M=3.59, SD=1.212). As well as the overall mean of the above variables was (3.81) with a standard deviation of (0.875). This result indicated that, use of smart services actual practices have a positive impact on efficiency, reducing errors and increasing safety while carrying out various tasks. This agreed with Paukstadt *et al.*, (2019) that the use of smart services by employees helps them to perform tasks with high efficiency.

3. Descriptive Statistics for the Effectiveness of Employee Performance

The aim of this variable is to assess the impact of the smart services on the effectiveness of employee performance.

Table (7): Assessment the Effectiveness of Employee Performance

Statements	M	SD	Rank	Attitude
1- Using smart services affects positively your privacy while doing work.	3.29	1.162	7	Agree
2- Using smart services reduces your mistakes while performing work.	3.80	0.961	6	Agree
3- Using smart services increases the easy of dealing with complaints.	3.91	0.990	5	Agree
4- Smart services provide more accurate information in different languages.	4.00	0.937	3	Agree
5- Using smart services reduces time and effort in your work performance.	4.04	1.003	1	Agree
6- Smart services help in communicating and interacting with customers while performing work.	4.02	0.963	2	Agree
7- Using smart increases the effectiveness of your work performance.	3.93	0.965	4	Agree
Overall mean	3.85	0.830		Agree

M = Mean SD = Standard Deviation

Source: prepared by the researchers

As illustrated in table 7, the most effective variables were, "Using smart services reduces time and effort in your work performance." (M = 4.04, SD = 1.003), "Smart

services help in communicating and interacting with customers while performing work." (M = 4.02, SD = 0.963). On the other hand, "smart services provide more accurate information in different languages." (M = 4.00, SD = 0.937). Additionally, "Using smart increases the effectiveness of your work performance." (M = 3.93, SD = 0.965). "Using smart services increases the ease of dealing with complaints." (M = 3.91, SD = 0.990). Furthermore, the least effective variable was "Using smart services reduces your mistakes while performing work." (M = 3.80, SD = 0.961), and "Using smart services affects your privacy while doing work." (M = 3.29, SD = 1.162). As well, the overall mean of the above variables was (3.85) with a standard deviation of (0.830). This result indicates that the use of smart services positively affects the effectiveness of employees by reducing time, effort, and errors as well as providing workers with information in various languages, which facilitates dealing with customers. This is agreed with Dreyer (2018) that smart services positively affect the effectiveness of employees.

Table (8): The Overall Effects of Smart Services Application and Employees Performance

The Axis	Mean	SD	95% Confidence Interval for Mean*	Rank	Attitude
Practices of Smart Services	3.73	0.738	3.65 -3.81	3	Agree
Employees Efficiency	3.81	0.875	3.72 -3.90	2	Agree
Employees Effectiveness	3.85	0.830	3.76 -3.93	1	Agree

*95% confidence interval for mean = $\bar{x} \pm t.0025.55 \times \text{Std. Error}$

According to table (8), a 95% confidence interval for the mean of "**Employee Effectiveness**" was between (3.76 as a lower bound) and (3.93 as an upper bound). The previous results refer to the "Agree" attitude. Furthermore, the 95% confidence interval for the mean of "**Employee Efficiency**" was between (3.72 as a lower bound) and (3.90 as an upper bound). The previous results refer to the "Agree" attitude, and the 95% confidence interval for the mean of "**Actual Practices of Smart Services**" was between (3.65 as a lower bound) and (3.81 as an upper bound). The previous results refer to the "agree" attitude. As a result, the employee's performance was assessed during using the smart services application, and the results suggested their approval and acceptance.

Part four: Test of Hypotheses

To test **H₁**, the study adopted Pearson correlation analysis to find out the relationship between actual practices of smart services and the efficiency of employees' performance.

Table (9): Pearson Correlation between Actual practices of Smart Services and the Efficiency of Employee Performance

Pearson Correlation		Employees Efficiency
Actual practices of Smart Services	Correlation Coefficient	0.765
	Sig.	0.000

As seen in table (9), there is a positive and significant relationship between actual practices of smart services and the efficiency of employees' performance. The value of the Pearson correlation coefficient was (.765-sig = 0.000). These results showed that there is a strong positive relationship between actual practices of smart services and

the efficiency of employee performance. This positive correlation indicates that using smart services applications increases the efficiency of employees' performance. This is consistent with Abdel-Karim et al., (2021) that there is a significant relationship between using smart services applications and the efficiency of employee performance. Based on the findings of Pearson correlation, it is found that hypothesis 1 (**H₁**) was accepted.

To test H₂, the study adopted Pearson correlation analysis to find out the relationship between actual practices of smart services and the effectiveness of employees' performance.

Table (10): Pearson Correlation between Actual practices of Smart Services and the Effectiveness of Employee Performance

Pearson Correlation		Employees Effectively
Actual practices of Smart Services	Correlation Coefficient	0.811
	Sig.	0.000

As seen in table (10), there is a positive and significant relationship between actual practices of smart services and the effectiveness of employee performance. The value of the Pearson correlation coefficient was (0.811-sig = 0.000). These results showed that there is a strong positive relationship between actual practices of smart services and the effectiveness of employee performance. This positive correlation indicates that using smart services applications increases the effectiveness of employee performance, which is consistent with Waschull et al., (2019) that there is a significant relationship between smart services and the effectiveness of employee performance. Based on the findings of Pearson correlation, it is found that hypothesis 2 (**H₂**) was accepted.

To test H₃, the study adopted linear regression analyses to explain the impact of actual practices of smart services on the efficiency of employees' performance.

Table (11): Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.765 ^a	0.504	0.503	3.84923

a. Predictors: (Constant), Actual practices of Smart Services

The results of table 11 showed that independent variable (actual practices of smart services) explained 76.5% of the dependent variable (efficiency of employees' performance).

Table (12): ANOVA Model

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	5439.467	1	5439.467	367.121	.000 ^b
	Residual	5348.781	361	14.817		
	Total	10788.248	362			

a. Dependent Variable: Efficiency of Employees Performance

b. Predictors: (Constant), Actual practices of Smart Services

As shown in table 12 the results proved that the model fit was significant as (f = 367.121 and p<0.05). It means there is a statistically significant impact of actual practices of smart services on the efficiency of employees' performance. Based on the previous findings, it is found that hypothesis 3 (**H₃**) was accepted.

Table (13): Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	6.555	0.905		7.241	0.000
	Actual practices of Smart Services	0.738	0.039	0.765	19.160	0.000

a. Dependent Variable: Efficiency of Employees Performance

It is clear from table 13 and by looking at the regression coefficient (β); it becomes clear that the statistical constant (β) is equal to 0.738 with a significance level less than 5%. It is also obvious that there is a significant impact of actual practices of smart services on the efficiency of employees' performance as that the value is 5%.

To test **H₄**, the study adopted linear regression analyses to explain the impact of actual practices of smart services on the effectiveness of employees' performance.

Table (14): Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.811 ^a	0.660	0.660	3.18529

a. Predictors: (Constant), Actual practices of Smart Services

The results of table 14 declared that independent variable (actual practices of smart services) explained 81.1% of the dependent variable (effectiveness of employees' performance).

Table (15): ANOVA Model

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	7125.527	1	7125.527	702.296	0.000 ^b
	Residual	3662.721	361	10.146		
	Total	10788.248	362			

a. Dependent Variable: Effectiveness of Employees Performance

b. Predictors: (Constant), Actual practices of Smart Service

As shown in table 12 the results proved that the model fit was significant as ($f = 702.296$ and $p < 0.05$). It means there is a statistically significant impact of actual practices of smart services on the effectiveness of employees' performance. Based on the previous findings, it is found that hypothesis 4 (**H₄**) was accepted.

Table (16): Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.868	0.795		3.608	0.000
	Actual practices of Smart Services	0.763	0.029	0.811	26.50	0.000

a. Dependent Variable: Effectiveness of Employees Performance

It is obvious from the previous table and by looking at the regression coefficient (β), it becomes clear that the statistical constant (β) is equal to 0.763 with a significance level less than 5%. It is also clear that there is a statically significant impact of actual practices of smart services on the effectiveness of employees' performance as that the value of is 5%.

5. Conclusion

The study provides several findings that can be used to explain the impact of smart services on the efficiency and effectiveness of employee performance in hotels (applying to the room sector).

1. The implications of technology applications in the hospitality industry for changes in employee morale, job satisfaction, work environment quality, and other work outcomes closely related to productivity and operational efficiency should be considered.
2. Employees in the room sector complete their tasks at work using a variety of smart technologies (identity verification technology, the internet of things, direct digital control systems, and wearable technology).
3. Employees use smart technology to communicate with guests (answering inquiries and reporting additional guest requests for the room).
4. Employees use smart technology to communicate with the maintenance department (reporting urgent repairs and maintenance work).
5. Employees use smart technology to perform housekeeping department tasks (such as preparing daily room status reports, room inspection review reports, room occupancy statistics, and reservations).
6. Employees use smart technology to complete front-office tasks (electronic reservations, electronic bill collection, determining the number of rooms needed, and completing check-in and check-out procedures).
7. Using smart services makes employee performance faster and positively affects the flexibility of work.
8. Smart services affect the efficiency of employee performance in a positive way.
9. Using smart services reduces time and effort in employees' work performance.
10. Using smart services increases the effectiveness of employee performance.
11. There is strong, positive relationship between actual practices of smart service practices and the efficiency of employee performance.
12. There is strong positive relationship between actual practices of smart services and the effectiveness of employees' performance.
13. There is a significant impact of actual practices of smart services practices on the effectiveness of employee performance by 81.1%.
14. There is significant impact of actual practices of smart services on the efficiency of employee performance by 76.5%.

6. Study Recommendations

Based on the findings of the study, several recommendations may be identified to maximize the benefits of smart service applications in the hotel industry in order to improve the efficiency and effectiveness of employees' performance in hotels.

1. Hotels should raise societal awareness of the dangers of cyber-attacks and the various types of attacks, as well as take an interest in developing a cyber-security strategy, increasing technological competencies to combat them, and developing systems to protect information and knowledge.
2. Hotels should enhance employee awareness of the importance of information technology as a tool for facilitating tasks, increasing operational efficiency and work flexibility, improving service quality, and encouraging and enhancing organizational competitiveness.
3. Hotels should promote training employees in the sector to deal with the outside world, with the training process carried out in accordance with international standards, in order to achieve a level of efficiency.

4. Hotel management should invest in hotel infrastructure while keeping up with global developments in artificial intelligence.
5. Human resources department should hire qualified and well-trained employees who are familiar with information technology systems.

7. Study Contributions

This study contributes to the general understanding of how smart services affect employee performance, particularly efficiency and effectiveness. Furthermore, it makes several critical recommendations to improve employee performance in the hotel industry as it considers digital transformation.

8. Limitation and Future Research Suggestions

The current study has several limitations that can address by future researchers. First, the current study adopted questionnaire forms with hotel employees. Therefore, future research can adopt interviews to obtain in-depth data from the interviewees. Second, the current study focused on the impact of smart services on the efficiency of employees' performance. Hence, future research should conduct on the influence of smart services on customer satisfaction in the hotel industry. Lastly, the current study conducted on the relationship between smart services and efficiency of hotel employees' performance in room division. Thus, future research could conduct the impact of smart services on hotel employee's performance in other divisions like food and beverages.

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أثر الخدمات الذكية على كفاءة وفاعلية أداء العاملين في الفنادق

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المخلص العربي	الكلمات المفتاحية
<p>أصبحت الخدمات الذكية مهمة للغاية في صناعة الضيافة ، خاصة مع تقدم تكنولوجيا المعلومات. تعمل الخدمات الذكية على تحسين أداء العاملين من خلال توفير مرونة جديدة وتقديم نظرة ثابتة للعمليات والمهام. تهدف هذه الدراسة إلى استكشاف أثر الخدمات الذكية على كفاءة وفاعلية أداء العاملين في الفنادق. استخدمت هذه الدراسة المنهج الوصفي مع الاستبيان لعينة عشوائية من العاملين في فنادق الثلاث والأربعة والخمسة نجوم في مدن الغردقة والجونة وسفاجا خلال الفترة (من نوفمبر 2021 إلى فبراير 2022). حيث تم توزيع إجمالي (380) نموذج استبيان بين العاملين الفندق. وأظهرت النتائج أن الممارسات الفعلية للخدمات الذكية تؤثر بشكل إيجابي على فاعلية أداء العاملين بنسبة 81.1%. كما تؤثر على كفاءة أداء العاملين إيجابياً بنسبة 76.5%. وفقاً للدراسة الحالية، يجب على إدارة الفنادق تعيين موظفين مدربين ومؤهلين، والإستثمار في تحسينات البنية التحتية الشاملة، ومواكبة التطورات التكنولوجية في مجال الذكاء الاصطناعي.</p>	<p>صناعة الضيافة التكنولوجيا الذكية الخدمات الذكية أداء العاملين الرقمنة</p>

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